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PROGRESS IN RADIOLOGY

The following question was recently submitted by the Editor to a number of American roentgenologists: "What do you consider the three most significant advances in the field of X-ray and radium therapy in the past ten years?" The MONTHLY believes their answers will prove as interesting to its readers as did the answers to similar questions relating to other specialties published here from time to time.

1. The introduction of cholecystography;
2. Intravenous pyelography;
3. Supervoltage roentgen therapy.

—Lawrence Reynolds, Detroit, Michigan.

1. Excretion urography;
2. The establishment of the international r (roentgen) unit;
3. The introduction of filtered radon seeds.

—Leopold Jaches, New York, N. Y.

1. Diagnostic Roentgenology—Introduction of cholecystography by Evarts Graham and his colleagues.
2. Roentgen Ray Therapy—Coutard's demonstration of the importance of low minute intensity and high total dose in the irradiation of neoplasm.
3. Radium Therapy—Dominici's and Regaud's establishment of the importance of thick platinum filters to filter out not only the beta radiation but also the softer rays in the gamma series.

—Paul C. Hodges, *University of Chicago*, Chicago, Ill.

1. The development of cholecystography;
2. The use of higher voltages and an increased knowledge and skill in the application of X-rays for treatment;
3. The more extensive use of large radium packs.

—G. W. Grier, Pittsburgh, Pa.

1. The discovery of cholecystography;
2. The development of intravenous urography;
3. The institution of the American Board of Radiology.

—B. R. Kirklin, *Mayo Clinic*, Rochester, Minn.

1. Discovery of cholecystography by Graham, Cole and Copher;
2. Intravenous urography by Von Licktenberg and Swick;
3. The improvement in high voltage X-ray therapy.

—Charles A. Waters, Baltimore, Md.

1. The universal acceptance of the standard r unit—result, order out of chaos in therapy;
2. Tube, screen, and film improvement—result, more accurate roentgenograms;
3. Rapid development of artificial contrast procedures (gall bladder, brain and meninges, bronchial tree, genito-urinary tract)—result, marked broadening field of usefulness for X-ray methods.

—Fred J. Hodges *University of Michigan*, Ann Arbor, Mich.

1. The development of the gold radon seed;
2. The platinum weak radium element needle;
3. The Coutard multiple dose X-ray technic.

—Charles L. Martin, Dallas, Texas.

1. The brilliant results obtained in the skillful application of X-ray and radium therapy in the treatment of carcinoma of the uterus;
2. The great advances that have been made in the irradiation of carcinoma of the breast;
3. The combined intravenous and retrograde urography.

—G. E. Pfahler, Philadelphia, Pa.

1. The introduction into the blood stream of substances which are opaque to X-ray and which will be secreted by the organ to be examined. (Urography);
2. The acceptance of the roentgen (r) as the unit of X-ray dosage, and the development of the divided dose method. (Coutard);
3. The development of blood vessel radiography.

—George W. Holmes, *Harvard Medical School*, Boston, Mass.

I. STERILITY.*
II. THE HORMONES IN GYNECOLOGY.*

EDWARD H. RICHARDSON, M. D.,
Baltimore, Md.†

It is evident that your Program Committee exercised discriminating judgment in choosing the two subjects which I have been invited to discuss this evening, since both of them are of interest not only to gynecologists, but they also obtrude themselves with monotonous regularity upon the attention of those engaged in almost every other major subdivision of clinical medicine.

I. STERILITY

First, let us consider the problem of sterility. It is one of far-reaching importance both because of its surprising prevalence and by reason of the fact that so many and such varied factors enter into its causation. The best available statistics are pretty well in agreement and show that at least 10 per cent of present-day marriages are involuntarily barren; which means that in the United States today there are 2,000,000 childless couples still within the age of reproduction who earnestly desire offspring.

It is well at the outset, perhaps, to familiarize ourselves with certain definitions and descriptive terms commonly employed by writers upon this subject.

Meaker's simple definition of sterility as "inability to initiate the reproductive process" is a good one, because it properly implies the possibility of either individual or joint responsibility in the mating.

Absolute sterility means the existence of conditions which prevent the possibility of pregnancy. It may be brought about by a total cessation of gametogenesis in either sex, on the one hand, or by insurmountable obstacles to fertilization. Such an unfortunate situation may be either temporary or permanent depending entirely upon whether the factors responsible are amenable to any form of remediable therapy.

Relative sterility and relative fertility are synonymous terms which imply that while pregnancy is possible, hindrances of varying degrees of severity exist; hence they include all grades from absolute sterility to absolute fertility.

Primary sterility signifies that pregnancy has never occurred; the congenital variety is usually absolute because of defective development, whereas in the acquired form prohibitive factors, such as closure of the tubes or destruction of the gonads, antedate the possibility of pregnancy.

Secondary sterility embraces all cases occurring from any cause whatsoever after one pregnancy. One-child sterility is a special form of this type.

Physiologic sterility exists prior to puberty and after the menopause due, of course, to the absence of ovulation. This latter function is inhibited also during pregnancy by means of hormones supplied by the corpus luteum, the hypophysis and the placenta. From the seventh to the fourteenth day of the menstrual cycle is the optimum time for pregnancy to occur. But the popular belief that there is a so-called safe period in each cycle during which a woman is immune against pregnancy is entirely fallacious. It is true, however, that the degree of fertility or of susceptibility to conception is influenced by many factors and is subject to wide variation in the individual woman. Such factors include the brief span of viability of both the ovum and the spermatozoon; the reduced fertility which exists during lactation, although pregnancy may occur in a lactating woman even prior to the resumption of menstruation; irradiation of the pelvic contents by either roentgen rays or radium; sudden and decided changes of climate; dietary deficiencies, general debility and undernutrition; and, finally, the possibility of non-ovulating cycles, especially during the pre-menopausal years.

Let us now consider the minimal physiologic requirements which must be met in order that a normal pregnancy may occur. They are (1) that a normal, actively motile spermatozoon, capable of propelling itself over the full length of the uterine cavity and two-thirds of the length of the fallopian tube, must be delivered inside the external os; (2) that here it must encounter congenial chemical en-

*Read by invitation before the Hartford Medical Society, Hartford, Conn., May 7, 1934.

†From the Department of Gynecology of the Johns Hopkins University and Hospital.

vironment; (3) that patency must exist from the external os to the fimbriated end of the tube; (4) that a normal ovum must have found its way across the tubo-ovarian hiatus and into the tube where fertilization must be consummated; (5) and that the fertilized ovum must migrate into the uterine cavity and there become implanted upon a suitably prepared endometrium.

It at once becomes apparent, therefore, that discovery of the factors responsible for a barren mating requires a careful and detailed investigation into the reproductive status of both parties involved. But since the problem of male sterility more properly belongs to the genitourinary specialist, I shall not trespass further upon his domain in this discussion than to emphasize the importance of enlisting his full cooperation in a joint effort to bring about therapeutic success. When it is recalled that childless marriages are directly attributable to male sterility in fully one-third of the total incidence and, further, that female sterility is in large measure traceable to gonorrheal infection acquired from male consorts, nothing more need be added to stress the necessity in every sterile union of a searching inquiry into the potency of the husband by one thoroughly competent to conduct such a study. And competency in this respect, permit me to remind you, signifies vastly more than the ability to report accurately upon microscopic examination of fresh specimens of semen.

ETIOLOGY

The etiological factors concerned with female sterility are more numerous, more complex and varied and often more elusive than are those encountered in the male. For convenience of presentation and discussion I shall utilize an antogether practical classification of them:

1. *Developmental Deficiencies.*—These occur in every unit of the reproductive system. True infantilism is relatively rare, but when it is encountered one usually finds pronounced inferiority of the entire sexual apparatus, so that there is no possible escape from permanent and absolute sterility.

Of much more frequent occurrence are the varying grades of hypoplasia, characterized by a short and tight vagina; a long rigid cervix with a pinhole os and a narrow canal which may be effectively blocked by tenacious mucus; a small firm and, more often than not, acutely anteflexed uterine corpus; fallopian tubes which are of smaller caliber and shorter than normal; and ovaries which are distinctly smaller and firmer than the average and which present a striking paucity of follicles. Many of these women are otherwise well-developed and seem particularly attractive to the opposite sex, because they comprise a considerable quota of those seeking escape from barrenness. Frequently, however, they are sexually indifferent or actually frigid, and they uniformly suffer from functional menstrual disturbances.

Imperforate hymen is an occasional obstacle, while actual stenosis of the cervix is a frequent offender in this group.

2. *Infections.*—These constitute by far the largest single class in every tabulated list of causative factors. Even in infancy and early childhood the exanthemata may produce cicatricial occlusion of the vagina, while the disgraceful prevalence of innocently acquired gonorrhea in female children is undoubtedly responsible for many closed tubes and stenosed cervices. In adult life, also, gonorrhea is the arch offender. Even if the unfortunate victim is lucky enough to survive its devastating effects without the necessity of total surgical ablation of her reproductive organs, she still is confronted with the probability of a stenosed cervix or of hopelessly damaged and occluded tubes, or of ovaries which have become completely sealed up in envelopes of adhesions. Any one of these unwelcome legacies will, of course, ruthlessly bring to bitter disappointment her most cherished hope, namely, that of motherhood.

Furthermore, puerperal infections, which so often result in pelvic peritonitis and extensive involvement of the uterine appendages in adhesions, contribute a substantial quota of one-pregnancy sterile women. A small proportion of such cases still occur in our best obstetrical wards, but the great majority of them follow in the wake of criminal abortions.

Tuberculosis is responsible for an additional small number of hopelessly occluded tubes.

Likewise, any form of septic peritonitis originating from perforations of the hollow viscera and even the so-called idiopathic variety may completely seal off the fimbriated ends of the tubes and bury the ovaries in such dense adhesions that further ovulation becomes impossible.

And, finally, in a much more elusive way infec-

tion may prevent conception even when no mechanical obstruction exists at any point from the external os to the fimbriated ends of the tubes. This misfortune is brought about by the creation of an environment at the vaginal vault and within the cervical canal which is chemically hostile to spermatozoa. Such a status is believed to be due to toxins produced through chronic infections of the endocervical glands, or to an antagonistic vaginal flora. More scientific light is needed, however, upon this problem of incompatibility. But every gynecologist has repeatedly overcome sterility by clearing up chronic endocervicitis and by changing the chemistry of the vagina through an attack upon its bacterial content. In my own series I have twenty-seven successful cases in which no other measure, whatsoever, was employed.

3. *Malposition and Foreign Bodies.*—In a small percentage of cases extreme grades of retroversion of the uterus may be an important factor in sterility. Not only does this condition bring about a chronic passive congestion of the intrapelvic reproductive units, but it often produces an actual mechanical obstruction of the tubes through torsion or angulation. In a few instances I have seen pregnancy follow shortly after a simple bimanual pelvic examination in such cases. An acutely anteflexed uterus with anteverted cervix is believed by many to be a common cause of relative infertility.

Pessaries of various types, if not kept scrupulously clean, are undoubtedly responsible for an altered and hostile chemistry within the vagina—a fact to be kept prominently in mind since they are so commonly used therapeutically. The intracervical stem pessary is still employed by some to combat sterility, but certainly it has an extremely limited use if it is to be condoned at all.

4. *Traumatic Conditions.*—Obstetrical injuries of the cervix and pelvic floor often lead to chronic infections of the cervical glands and to an abnormal bacterial flora within the vagina. Or sometimes a perineal or cervico-vaginal cicatrix may result in prohibitive dyspareunia. So, too, vesicovaginal fistula is frequently accompanied by amenorrhea and consequent sterility. Extensive burns of the vulva or accidental carbolic acid eschars of the vagina may produce strictures that require extensive plastic surgery to admit of coitus. Improper use of douches sometimes results in chemical death of spermatozoa and thus to unintentional contraception. And, finally, unskilled and ill-advised irradiation of the female reproductive organs, which has been so energetically and viciously propagandized by those commercially interested, is supplying an ever-increasing quota of permanently sterile women.

5. *Neoplasms.*—Tumors of the vulva—for example, large fibromata, the autoinoculable verruca acuminata, Bartholin gland cysts and urethral caruncle—either mechanically or by reason of dyspareunia—may prevent coitus.

Cervical blockade by mucous polypi or by a submucous myoma occasionally prevents ingress of spermatozoa. But sterility under such circumstances, as is true also of malignant disease of the cervix, is much more apt to be due to associated hostile secretions which are always present in great abundance.

Fibroid tumors of the uterus produce sterility much less frequently than they do spontaneous abortion and complications of labor. Nevertheless, they can effectively block both tubes and, further, through the frequency of associated menstrual disturbances and other complications, they demand particular consideration when encountered in connection with the problem of sterility. And adeno-myomata, with the frequent association of pelvic endometriosis, are of even graver significance.

6. *Ovarian Tumors.*—In general, new growths of the ovaries may produce sterility in two ways: (1) they may prevent follicular ripening and ovulation; and (2) they may either obstruct the fallopian tubes by pressure, or the tubes may become so stretched and distorted that even if ovulation does occur, there is scant possibility of the discharged ovum finding its way into the remotely situated fimbriated tubal ostium. It is surprising that total amenorrhea occurs so rarely with bilateral ovarian tumors of any variety; the incidence is probably not over 2 to 3 per cent. But scanty and delayed menstruation are much more common, and when such a functional disturbance is found associated with bilateral tumors coexisting sterility must, in the absence of other discoverable factors, be attributed to them. Multipl follicular atresia characterized by imprisonment of the ova in follicles that have undergone partial development and then retrogression without luetinization is undoubtedly a frequent cause of sterility. This disease is nearly always associated with menstrual disturbances, and

often, too, there are stigmata of hypoplasia in other units of the generative system.

7. *Miscellaneous Factors.*—Reproductive inhibition or relative infertility is unformly associated with many chronic diseases that gradually bring about general constitutional debility. Examples in this group are pernicious anemia, chlorosis, the leukemias, diabetes, pulmonary tuberculosis, Addison's disease, nephritis and faulty metabolism from various dietary deficiencies. Chronic intoxication from morphine, phosphorus, lead, arsenic and alcohol undoubtedly exerts a deleterious effect upon the sensitive germ-cells with consequent reduced fertility, if not actual sterility.

The endocrinopathies—particularly those originating in the anterior lobe of the pituitary gland, the thyroid and the adrenal glands—exert a profound influence upon the gonads and their gametogenic activity.

Psycho-neurotic states and mental depressions arising from sustained occupational or emotional stress also seriously impair fertility. This applies particularly to women who exhibit complete absence of libido-sexualis and who commonly complain of prohibitive vaginismus and dyspareunia.

And, finally, consanguinity appears definitely to diminish fertility. Indeed, according to some statistics fully one-third of such marriages will prove barren.

DIAGNOSIS

It now becomes evident, even from this incomplete survey of the multiple and varied factors involved, that sterility is rarely a simple clinical problem. Its solution nearly always requires a thorough-going general diagnostic study of both parties to the mating. Nor must one rest content with the discovery of a single obstacle. Meaker carefully tabulated the factors responsible in seventy-five cases of sterility and found:

Male factors—115—40 local plus 75 constitutional.

Female factors 242—165 local plus 77 constitutional.

The average number of etiological units per case was between four and five. And while the constitutional causes were the same in both sexes, the local obstacles to conception were four times more frequent in the female.

Confining our discussion now to the problems presented by the sterile woman, let us consider exactly what diagnostic procedures are to be followed in any given case. First of all, a careful general history covering the specific infectious diseases and the various systems must be obtained; this should include particularly any evidence of ancestral infertility; the incidence in early life of contagious diseases, especially mumps and the exanthemata; the age of puberty and the customary type of the individual's menstrual cycle; the existence of abnormal vaginal discharge; a careful inquiry into symptoms of endocrine dysfunction; cohabitation habits and unsatisfactory features of marital relations, including anxiety neuroses, frigidity, dyspareunia and absence of libido.

Next in order is a general physical examination including, of course, an exact investigation into the status of each unit of the reproductive apparatus, the usual laboratory aids and such special tests as may be indicated.

Then follows a determination of the compatibility of the male and female secretions or, in other words, the chemical environmental conditions which greet the spermatozoa upon being deposited at the vaginal vault. This is admirably accomplished by means of the invaluable Hühner test, which not only is an accurate indication of compatibility, but furnishes also valuable information regarding male potency as evidenced by the number, morphology, motility and endurance of the spermatozoa present. In the performance of this test the woman is instructed to report for examination within one or two hours after coitus, and she must be cautioned not to void the urine prior to the test. The first microscopic preparation is obtained by means of a pipette from the secretions at the vaginal vault. The latter, together with the vaginal portion of the cervix and external os, are then thoroughly cleansed with cotton and a second preparation is obtained from the cervical canal. Under normal conditions an abundance of active spermatozoa should be recovered from both locations, but a variety of findings is possible and the proper interpretation of these furnish substantial help in the solution of our problem.

Finally, our investigation must also include determination of cervico-tubal patency. The simple introduction of a uterine sound at once reveals the presence of obstruction in the cervical canal; and

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—thanks to I. C. Rubin, who introduced both the necessary apparatus and the method in 1920—the employment of uterotubal insufflation almost as quickly discloses tubal blockade.

Rubin enumerates the following contraindications to performance of his test: (1) inflammations of the genital tract, i. e., colpitis, endocervicitis, adnexal inflammation; (2) absence of spermatozoa; (3) cardiovascular disease or other systemic conditions which would prove serious if pregnancy should intervene; (4) patients of frankly neuropathic disposition who do not make good subjects; (5) menstruation.

The average incidence of tubal obstruction revealed by this method as reported by various authors varies from 55 to 60 per cent of the sterile women tested.

Localization of unyielding obstruction in the tube is of both prognostic and therapeutic importance. Rubin has recently shown that this is possible of attainment with remarkable accuracy by simply noting the site of the pain produced by the gas pressure during insufflation. Mid-line pain above the symphysis indicates blockage at the uterine end of the tube; but when closed at the fimbriae, pain of greater severity radiates well out to the sides and is produced by distention of the tubes.

The method commonly employed hitherto for this purpose has been hysterosalpingography after injection of lipiodol into the uterus. The advantages of this procedure are that it discloses any deformity of the uterine cavity; that it differentiates unilateral from bilateral tubal patency; and that it accurately locates the point of obstruction in each tube which is nearest to the uterus. Its disadvantages are that it gives no information of the condition of the tube distal to the first point of occlusion; that it does not accurately disclose the degree of patency; that it may remain for months in the tubes without being absorbed and may actually set up an inflammatory reaction terminating in complete and permanent stricture where partial patency previously existed; and that if any of it escapes into the pelvis a violently painful irritative peritonitis results.

TREATMENT

It would be quite superfluous for me to discuss here the treatment of sterility in great detail. From what has already been said its successful management obviously requires a comprehensive and searching examination of both parties to the fruitless union, if we are to focus our therapeutic attack exactly upon the four or five factors which are specifically responsible in any particular case.

It might be wise to sound a note of warning regarding the proper management of individuals and mates found to be incurably sterile. Few situations require the exercise of saner judgment or of greater tact. The dream of a lifetime may be rudely shattered with unpredictable consequences in the psychic domain, especially in the male, if such a verdict be rendered with brutal frankness. Usually it is wiser and far more discreet to keep a rainbow of hope always suspended in the clouds of despair until time in its gentle flight shall have silently revealed the truth.

But, fortunately, earnest therapeutic effort is crowned with success in a surprisingly large percentage of cases. Consider briefly our combat equipment and the rationale of its application.

Fortified with our newer knowledge that deficient gametogenesis is often only a temporary by-product of undernutrition and dietary deficencies which are traceable either to ignorance or to sustained occupational and emotional stress, we promtply institute under such circumstances an appropriate upbuilding and disciplinary regime.

Progress in prenatal care, and let us hope in the science of eugenics also, coupled with a more intelligent control of childhood and adolescence will, I believe, eventually lead to a declining incidence of developmental deficiencies. But even when these are encountered, plastic and corrective surgery has much to offer.

Again, when the exigencies of a difficult labor leave the birth canal so badly traumatized that the unfortunate mother is inevitably doomed to one-child sterility, reconstructive surgery with its wealth of resourcefulness is often able to restore function. Indeed, this may frequently be accomplished in suitable cases by the judicious use of pessaries alone or in conjunction with other simple therapeutic measures.

Neoplasms, of course, often offer insurmountable difficulties. And yet a carefully planned and executed operation may achieve success where one's first impression indicates that there is no escape from total ablation.

Certainly it is gratifying to consider the amaz-

ing progress that has been made within recent years in prevention and treatment of the devastating effects of pelvic infections. Particular mention should be made in this connection of the ingenious and highly effective physiotherapeutic devices which are now available, because intelligent use of these measures quiets the inflammatory storm, eradicates infection and converts an environment which is distinctly hostile to fertilization into one that is in all respects congenial to that episode. And if, perchance, the damage has already been done before restoration of function is sought, uterotubal insufflation and hysterosalpingography coupled with plastic surgery judiciously applied to damaged tubes and ovaries will still be able to salvage a substantial quota.

Other remedial agencies which possess undoubted merit are available to be employed under particular circumstances, but I shall have to omit a discussion of them now and immediately bring this review to a close. I earnestly hope that it has been sufficiently comprehensive to afford an accurate idea of present-day views on the subject of sterility.

II. The Hormones in Gynecology

The extraordinary panorama which in the domain of endocrinology has been rapidly unfolded before the eyes of the scientific world within the past decade and a half is difficult to contemplate with complete equanimity. Indeed, so stirring is its effect upon one's imagination that a sane interpretation and evaluation of what has transpired requires the exercise of sustained literary restraint. Metaphorically speaking, we have been observing the tedious assemblage of what might be aptly described as a remarkably ingenious and complicated jigsaw puzzle, many pièces of which through diligent and persevering effort have already been cleverly fitted together, but the pattern is far from complete, with many defects still remaining to be filled by essential units not yet discovered and identified, before we will be able to visualize this amazing example of physiologic art in its entirety.

At this time our discussion is concerned mainly with the knowledge of hormone activities that has accrued from an intensive study of female sex physiology, and we may conveniently begin with a consideration of the cycle phenomena here exhibited.

We now know that in the vast majority of normal women there recurs each twenty-eight days from puberty to menopause at least two beautifully coordinated physiologic cycles involving specific reproductive units. The mechanism is set into operation through sudden activation of an hitherto dormant primordial follicle in the ovary. Exactly what factors determine the specific selection of one follicle from among many thousands of identical age and histologic appearance we do not know, but certain it is that once a follicle becomes activated, it rapidly develops into a full grown Graafian follicle within two weeks and becomes so distended by its own secretion of liquor folliculi that approximately on the fourteenth day it spontaneously ruptures and ejects the hitherto imprisoned ovum. The latter, of course, has likewise in the same period of time reached maturity and is now ripe for fertilization. Whether or not in this vitally important process of maturation the ovum itself elaborates any specific hormone and, if so, precisely what part it plays in the objective phenomena observed is still an unsolved question.

It might be profitable at this point to digress for a moment in order to consider nature's device for safe transfer of the ovum from the ruptured follicle into the fimbriated end of the fallopian tube. The female among lower animals is provided in different species with specific safeguards in this respect, such as a capacious infundibulum, prehensile fimbriae, ciliated peritoneal epithelium, etc., but in the human female, curiously enough, no comparable structures are to be found. On the contrary, there normally exists an actual tubo-ovarian hiatus of variable length, which, under special conditions such as obtains, for example, following surgical extirpation of one tube and the opposite ovary, may almost equal in length the transverse diameter of the pelvis. And yet, even under such circumstances, pregnancy frequently occurs. What factors then are responsible for thus safely guiding the ovum to its purported destiny? At least three agencies may participate in this important function: (1) the liberal supply of lymph always present in the pelvis of a normal woman; (2) the vigorous and rhythmic peristaltic contractions with which both the uterus and the fallopian tubes are endowed; and (3) the myriads of long cilia perched upon the tops of the tubal epithelial cells which, by moving in perfect unison, maintain an endless series of minute wavelets al-

ways advancing toward the uterine cavity. Collectively, these three constitute a dependable mechanism for safe and sure transfer of the delicate ovum after it has been so rudely catapulted from its embryonic nest.

But this same follicle nest has other and important work yet to do which vitally concerns the future welfare of its discarded egg. Up to this period in its life history, in addition to housing the ovum, from the very moment since it became activated the follicle has been busily engaged in the manufacture of one of its two potent hormones, namely, theelin. The isolation of this agent in crystalline form in 1928 by Doisy and his co-workers in this country and independently by Butenandt in Germany, marks an epoch in hormonology; but some confusion has resulted from the multiplicity of names that have been used for various reasons, partly scientific and partly commercial, to designate it. Among the commoner ones in general use are theelin, ovarian follicular hormone, oestrin, female sex hormone, progynon, folliculin and amniotin.

The physiology of this hormone has been diligently studied both through searching inquiry into the part it plays in the growth and oestrual phenomena of immature females and mature castrate laboratory animals, as well as through intimate and unremitting investigation of its role in the menstrual cycles of primates. The rapid prenatal growth and postnatal involution of a baby's uterus is believed to be due to a liberal supply of folliculin from the maternal circulation prior to parturition and to its abrupt withdrawal upon severance of the umbilical cord. The period from birth to puberty is characterized by relative inactivity so far as the follicular apparatus of the ovaries is concerned. To be sure, there occurs durings these years a sharp reduction to approximately one-third of the original number of primordial follicles present in each ovary at birth. This is accomplished through a process of atresia and absorption, but we are ignorant as to its causation, as we are also concerning the question as to whether during infancy and childhood folliculin plays any part in the gradual growth of the entire genital system. There is an abundance of collateral evidence to justify a firm belief that it does.

But this long period of almost total inhibition of ovarian activity comes abruptly to a close with the advent of that remarkable epoch which we call puberty; and what a strange and heterogeneous group of phenomena is now ushered in! We designate these as the secondary sexual characteristics, which includes growth changes in the bony pelvis; changes in body contour; mammary gland development; growth of vulval, pubic and axillary hair; growth of the larynx, with consequent change of voice; activation of ovarian follicles and the onset of menstruation; sex consciousness and the awakening of libido; demonstrable enlargement of the thyroid gland; and marked nervous, emotional and psychic instability.

Now compare with this list the reactions of laboratory animals to the experimental administration of theelin as described by Edgar Allen. The response includes marked proliferation of the vaginal epithelium; striking growth changes in the uterus; rapid hyperplasia of the endometrium; secretion of fluid by the uterine glands; changes in the amplitude and rate of uterine contractions; hypertrophy and repair of the tubes; growth in the mammary gland tree; production of oestrus; induction of precocious maturity; and induction in the female of a brief period of extreme activity at oestrus. The evidence afforded by such clinical and experimental data, to which a substantial corroborative increment is available from clinico-pathological sources, leaves no doubt, whatsoever, that folliculin is primarily a growth hormone and sexual activator. In the human female the belief appears to be well founded that it is directly responsible for the gradual and progressive hypertrophic changes of the endometrial cycle up to the beginning of the secretory or pregravid stage.

Returning now to the mature Graafian follicle, we know that immediately after rupture and expulsion of its contents there follows in orderly sequence the corpus luteum cycle. It is an interesting historical fact that even before the era of intensive study of the physiology of menstruation, which now covers two decades, the Breslau embryologist, Gustav Born, not only believed the corpus luteum to be a gland of internal secretion, but he also formulated an hypothesis attributing to it the production of a specific hormone which both inhibits ovulation and prepares the endometrium for nidation. His pupil, L. Fraenkel, undertook to test the validity of this hypothesis in a striking series of experiments upon

rabbits, and published his observations in 1903. He found that operative removal of corpora lutea from the ovaries of pregnant rabbits results uniformly in absorption of the fetuses when done early in pregnancy, whereas later ablation produces abortion. Excision or cautery destruction of other portions of the ovary failed to produce these results. Fraenkel concluded, therefore, that the corpus luteum is essential to normal implantation of the ovum and to continuation of pregnancy. This publication proved to be a tremendous stimulus to other workers and within a decade intensive studies of this little endocrine unit, particularly by Robert Meyer, Ruge, Miller and Fraenkel, completely elucidated its life cycle. Through these and other supplemental researches it has been ascertained that the life cycle of the corpus luteum closely parallels the time required for the ovum to transverse the fallopian tube, and that exactly at the time when the fully developed corpus luteum attains its maximum degree of secretory activity the endometrium likewise exhibits the height of its cyclic growth. The final and convincing experimental proof that the corpus luteum does produce a specific sensitizing hormone was furnished by Corner and Allen in 1929 when they succeeded in preparing an aqueous extract from the yellow body which produces the typical progestational or pregravid endometrial reaction in castrates. Furthermore, by repeated injections of this extract they were able to prevent interruption of pregnancy in rabbits notwithstanding the fact that the ovaries were completely removed within twenty-four hours after copulation. This newly isolated hormone they aptly called progestin.

There is available an abundance of experimental evidence to justify the conclusion that neither folliculin nor progestin acting alone can bring about the entire menstrual cycle of the endometrium. This is accomplished through a beautifully adjusted sequential action of these two hormones in which immediately following the endometrial desquamation incident to the menstrual flow folliculin stimulates the process of repair and continues steadily to promote growth of the entire endometrium up to the final progestational or pregravid stage, whereupon progestin takes over the job and puts on the finishing touches just in time for arrival of a fertilized ovum. If impregnation has not occurred, naturally nidation cannot occur; consequently the corpus luteum cycle ends and the suppression of its hormone progestin until recently appeared to be responsible for the catabolic phase of the menstrual cycle, namely, surface desquamation of the endometrium and flow of menstrual blood. But this view now has to be modified since it has been shown that, in the human at least, folliculin production is continued by the corpus luteum, and that whereas it is true that excision of the corpus luteum produces uterine bleeding, the same thing occurs if a mature follicle is ablated. This evidence seems clearly to indicate, therefore, that menstrual bleeding is to be attributed to withdrawal of folliculin rather than of progestin.

We come now to a consideration of the influence of extrapelvic hormones upon ovarian function. And here particularly we encounter in the literature a vast deal of impressionistic speculation. An abundance of clinico-pathological evidence is available to indicate that profound dysfunction of any one of the major units which collectively are designated the endocrine system will produce disharmony in gonadal function. Familiar examples are furnished by the menstrual disturbances commonly encountered with hyperthyroidism, or the hypogenitalism of cretins; and by the polyglandular syndromes which characterize neoplasms of the adrenal, the pineal and the pituitary glands.

Of these various closely interrelated physiologic units the hormonal activities of the anterior lobe of the hypophysis have been studied with particular zeal and with substantial profit. This tiny bit of glandular tissue is composed of cellular elements which, on the basis of their staining reactions, are divisible into two chief types: (1) those containing a non-granular cytoplasm, and (2) those with a distinctly granular content. The former are the neutrophil (chromophobe) elements and the latter are of two varieties: (a) those whose granules show an affinity for acid dyes (acidophil cells) and (b) those with an affinity for basic dyes (basophil cells). But to these three types of cells Evans in a recent review of our present knowledge of anterior pituitary function ascribed the production of no less than five distinct hormones which can be clearly differentiated by means of specific biologic tests; namely, growth, gonadotropic, thyrotropic, lactogenic and diabetogenic hormones.

In this discussion we are concerned only with

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the gonadotropic principles. Accumulated clinical data relating to primary pathologic lesions of the pituitary glands supplemented by a wealth of corroborative extirpation experiments has shown that marked hypophyseal deficiency in the immature results in defective development of both primary and secondary sex phenomena, while in the mature female it profoundly disturbs the physiology of the sex cycle. Now the antithesis of this sexual infantilism, namely, precocious sexual development may be produced at will by the conveyance to animals either of hypophyseal transplants or the sustained administration of anterior lobe extracts. But confusion still exists and controversial discussion continues unabated both regarding the number and source of the gonadotropic hormones. For example, there is a sharp conflict of opinion as to whether prolan—the sex hormone which is so abundantly present in the blood and urine of pregnant women and which furnishes the basis of the invaluable Aschheim-Zondek pregnancy test and its modifications—is of placental origin or is derived from the pituitary gland. Certainly impressive biologic evidence has been adduced to show that this hormone, prolan, is not the true anterior hypophyseal sex hormone. Not only can the two be clearly differentiated, but, according to Evans, the potency of prolan can be greatly increased by the addition to it of simple alkaline aqueous extracts of the hypophysis; and, conversely, extracts of this gland known to be rich in gonadotropic hormone and free of growth hormone can be intensified in potency through the addition of prolan. Much of the earlier confusion in these biologic investigations has been cleared up through the discovery of wide species variation in hormonal reactions, and it has been a bitter disappointment, too, to discover that so little of genuine practical therapeutic value can as yet be successfully employed in the human female. But we clinicians must not forget the debt of gratitude we owe to our research confreres who through much labor have contributed and will continue to contribute so much to endocrinology. It remained for these men to demonstrate the utter worthlessness of the varied assortment of gland products, the therapeutic use of which in former years proved so discouraging. Today we have a flood of new products which are being paraded under a variety of trade names, for which claims far exceeding in extravagance those made for the older preparations are being vaunted and which are expensive too. High pressure salesmanship at its best is being exhibted with ruthless vigor. There is need, therefore, for the exercise of great caution and as yet only a limited expectancy, if measured by results obtained, is justified.

In conclusion, it might be worth while briefly to summarize the therapeutic application and limitations of the ovarian and pituitary hormones at present available for clinical use.

In cases of delayed puberty attributed to infantilism of the reproductive apparatus I have seen no demonstrable effect either upon growth or function of any combination of hormones at present obtainable. It would appear that cautious use of the growth hormone of the anterior pituitary gland in combination with theelin would be clearly indicated. But the former is not yet available for clinical use, and the latter is entirely inefficient.

Varying grades of hypoplasia of the pelvic organs, associated with dysmenorrhea and sterility, is commonly encountered by every gynecologist. There now remains little doubt that the menstrual cycles in these women are uniformly anovulatory. Their ovaries contain multiple tiny cystic follicles which have partially developed and then retrogressed with imprisoned degenerated ova. Since they do not ovulate, it is quite clear why we have hitherto failed in this group to overcome sterility. As yet we are unable either to bring about full development of their pelvic organs or to prevent follicular atresia and attempts to do so by the use of any of the commercial hormones now to be had have in my experience failed utterly. Amenorrhea as a functional disorder of the reproductive organs and when unassociated with other organic or constitutional maladies may sometimes be benefited by the liberal use of folliculin, but the results are discouragingly uncertain and disappointing.

The functional bleeding cases—both of the menorrhagic and metrorrhagic type—so commonly encountered in young women, as well as in those of menopausal age, theoretically should respond to the hypodermic administration of antuitrin, since this is the pituitary-like hormone obtained from the urine of pregnant women which is supposed to stimulate luteinization of the ovarian follicles and thus inhibit the bleeding. A considerable measure

of success has been obtained in young women in this way, but the older women do not respond nearly so well, and in both groups we experience many failures. No one knows exactly how the successes are to be explained either, since often the bleeding stops short within several hours after injection of the antuitrin and long before any luteinization of follicles could possibly have occurred. Nevertheless, antuitrin is a valuable acquisition for the conservative treatment of functional uterine bleeding.

Instances of so-called primary dysmenorrhea are forever cropping up to plague us. Considerable recent experimental evidence supports the idea that the actual cause of the pain is increased irritability of the uterine musculature with exaggerated contractural response to excessive production of folliculin and a deficiency of progestin, the latter substance being the normal inhibitor of rhythmic uterine contractions. Practical control of such cases of dysmenorrhea through supplemental use of progestin is not yet possible, since this hormone is not obtainable for clinical use.

The use of folliculin as a part of the therapeutic management of severe menopausal symptoms is often, but not always, followed by gratifying results. Certainly it should always be freely employed in these cases.

In all of these functional disorders, if we may judge from the few scattered experiments upon the human female thus far reported, our hormone dosage as measured in rat units has hitherto been far too small. For example, Kaufmann recently reported the first artificial production of a complete menstrual cycle in a castrated human female that has been achieved. To bring about this result he used 320,000 mouse units of folliculin and ninety rabbit units of progestin! It is not surprising, therefore, that our results have not hitherto been brilliant following the periodic injection of several hundred units of folliculin. But let us not become impatient. Behold what a wealth of accurate and astounding physiologic fact has already been revealed within this brief era of intensive endocrinological research! In this brief review I have discussed only a mere fraction of it. Certainly, therefore, it behooves us clinicians to maintain an attitude of sympathetic and cooperative helpfulness towards our splendid research colleagues who are working with such commendable zeal to provide us with effective measures for bringing sunshine into the lives literally of thousands who now are hopelessly groping amid the fogs of endocrine imbalance.

CLINICAL STUDY OF ROCKY MOUNTAIN SPOTTED FEVER EASTERN TYPE.*

H. B. MULHOLLAND, M. D.,
University, Va.
From Department of Internal Medicine, University of Virginia

During the past spring and summer seven cases of Rocky Mountain spotted fever were observed by the staff of the University of Virginia Hospital in the vicinity of Charlottesville. While in the main these cases conformed to the already published clinical descriptions, they presented interesting variations.

In 1931, Badger, Dyer and Rumreich[1] described the identification of the infection in the Eastern portion of the United States. Since this report a number of other authors[2] have noted the appearance of the disease in this section of the country. Because of the increasing number of cases reported, it is probable that this infection will be more frequently encountered in general practice.

Charts I, II and III show the temperature, pulse and important data in a mild, moderate and severe case, respectively, of the infection with recovery. Chart IV shows the rash at its height in Case IV.

The following case reports give the important data in each individual instance:

Case I, E. F.: Male, age 16 years, admitted June 19, 1934.

Chief Complaint: Headache.

Family History and Past History: Unimportant.

*Read at the sixty-fifth annual meeting of the Medical Society of Virginia, in Alexandria, October 9-11, 1934.

CHART I

CHART 1 ~ E·F·~ MALE, AGED 16 YRS.~ ADMITTED 6-18-34.

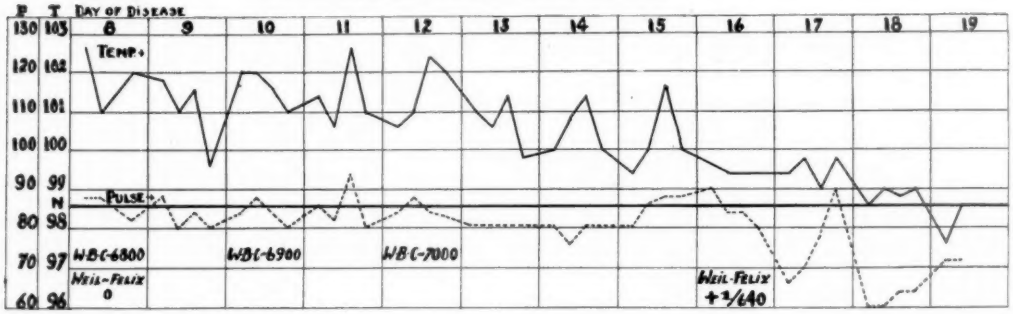


CHART 2. W.H.~ MALE AGED 17 ~ SEEN 7-28-34

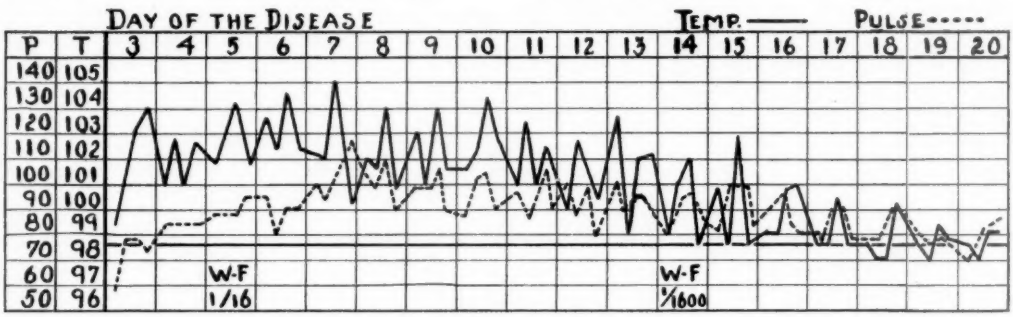
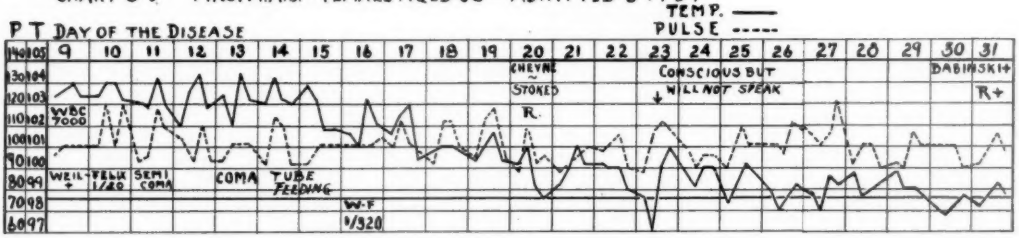
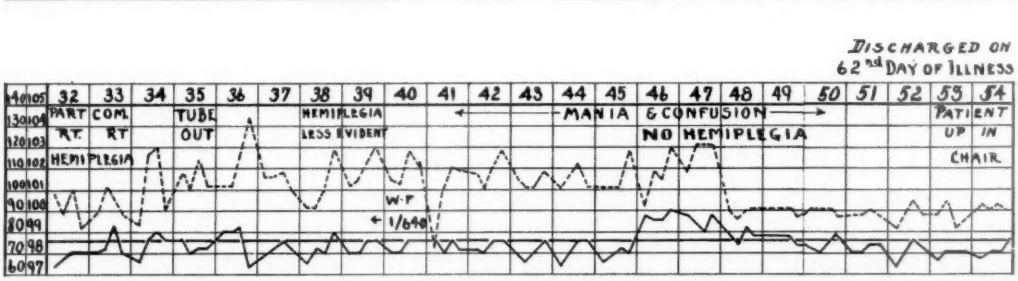


CHART 3. MRS. H.A.O.~FEMALE AGED 68 ~ ADMITTED 6-19-34



DISCHARGED ON 62nd DAY OF ILLNESS


32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54
PART PARALYSIS RT.
COMPLETE PARALYSIS RT.
TUBE OUT
HEMIPLEGIA LESS EVIDENT
W-F 1/640
MANIA & CONFUSION
NO HEMIPLEGIA
PATIENT UP IN CHAIR

Present Illness: Bitten by tick one to two days before symptoms began. Before his illness he had worked in the woods. Severe frontal headache of one week's duration with poor appetite and weakness, but not confined to bed.

Physical Examination: This patient was not ill. There were a few macular and papular spots on palms of hands, soles of feet, body and legs, reddish-brown in color. Slight injection of the throat was noted. The spleen was barely palpable. The temperature returned to normal on the eighteenth day. Temperature and other clinical data given in Chart I.

Chart 4.—Rash in Case IV. Note faint macular areas and darker petechiae.

Case II, W. H.: Male, age 14 years. (Seen 7-28-34, in consultation with Dr. W. C. Mason, Gordonsville, who kindly gave his permission to use this data.)

Family History and Past History: Unimportant.

Present Illness: Headache with loss of "pep" three days before, followed by backache. Rash appeared on third day of illness.

Physical Examination: Young, well-developed boy, only moderately ill. Temperature 103, respiration not increased, pulse 80. On the arms and legs there were diffuse macular areas, 2 to 3 mm. in diameter, slightly raised from the surface. A few were noted on the back. This patient was seen three times following the first visit, during which increasing toxicity, stiffness of the neck and marked conjunctivitis were noted. Extreme tenderness of the skin developed and the rash became generalized, involving the face. The spots later became purplish-red in appearance and particularly intense over the buttocks. Painful tender glands were noted in the cervical region.

Convalescence was uneventful except for a restless nervousness. This patient gave a history of frequent tick bites ten days before present illness started. The temperature reached normal on the eighteenth day. Important data given in Chart II.

Case III, B. W.: Male, age 14 years, seen in consultation with Dr. Mason, 8-11-34.

Family History and Past History: Unimportant.

Present Illness: Four days previously this patient began to feel badly, complaining of intense frontal headache. This had persisted and was accompanied by photophobia and general malaise.

Physical Examination: Healthy, thin boy with conjunctival injection, moderately stiff neck. Heart and lungs normal. Pulse 70. Abdomen distended. Over the wrists, forearms, buttocks, ankles and lower legs there were pink, macular areas about 2 to 4 mm. in diameter. A few similar scattered areas were noted over the back and abdomen. The face was clear.

Course: This patient developed a rash over the whole body and ran a typical course of the disease, recovering completely. History of tick bite two weeks before onset. The temperature reached normal on the seventeenth day. Weil Felix positive 1:160 on the fourteenth day.

Case IV, Mrs. H. A. O.: Age 68 years., admitted 6-19-34. This patient was unusually healthy until onset of present illness.

Present Illness: Well until eight days before admission when she experienced loss of appetite, fever and pain in the left side of the abdomen. Following this until admission the patient just felt "no account" with a slight frontal headache.

Physical Examination: Toxic, moderately ill, elderly woman, with slight injection of the conjunctivae. There were a few rales in the base of the right lung. The abdomen was distended, spleen not palpable. Over the forearms, chest, abdomen, buttocks, ankles and feet there were brownism-pink macular areas 2 to 5 mm. in diameter.

Course: The patient rapidly became more toxic, lapsing first into a semi-coma, followed by coma. The neck became very stiff but two lumbar taps were negative. The rash extended over the whole body, sparing the face. On the tenth day after admission a duodenal tube was passed and patient received nourishment by this route for twenty-two days. During this period she had incontinence of urine and feces. On the thirty-first day of the disease she developed a positive Babinski on the right, followed by complete right-sided hemiplegia, which cleared up on the forty-sixth day. After regaining consciousness she had disorientation and mania, the latter persisting until discharge. Although her temperature touched the normal on the eighteenth day, it was irregularly raised for some days thereafter. A recent personal communication states that this patient has recovered mentally and physically. Chart III indicates important data.

Case V, D. W. B.: Male, age 5 years, admitted 7-27-34.

Family History and Past History: Unimportant.

Present Illness: Two weeks before admission he complained of cramp-like pains in abdomen and headache. A temperature of 102.5 was found, which remained high even though the above symptoms disappeared. One week ago he developed pain in the neck, which drew his head to one side. This pain and soreness extended down into the chest and shoulders. About this time the mother noticed several round red "bumps" on his lower chest and the inner surfaces of the arms. These spread until

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they covered the entire body. The child has become more toxic, hence his admission to the hospital.

Physical Examination: The child was well-developed and nourished, very fretful and nervous. Over the trunk and extremities there was a macular eruption. This was of a brownish tint. Some petechiae were present. The conjunctivae were injected and the cervical glands enlarged. Temperature 104.6. Pulse 106. White cells 6,400.

Course: Rash became more petechial. Face not involved. Generalized muscle and joint soreness. Temperature ran a course between 103 and 104 until nineteenth day of admission (thirty-third day of disease), when it dropped to normal, pulse high. White blood cells later 28,000, 20,000 and 12,000. Weil Felix negative on admission, positive 1:1280 on twenty-fourth day of disease. Convalescence uneventful.

Case VI, H. L. G.: Male, age 54 years, admitted 5-17-34. Occupation, farmer.

Family History and Past History: Unimportant.

Present Illness: One week before admission he developed generalized headache, diffuse abdominal pain, fainting spells, nausea and nosebleed. These symptoms were followed by general malaise and chilly sensations. There was no history of tick bite.

Physical Examination: Showed a very ill, stuporous man. Scattered over the body there was a dusky hemorrhagic rash, which spared the face, more intense on buttocks, arms and legs. The neck was stiff and abdomen distended. The scrotum showed a large hemorrhagic area. Temperature 103.6, pulse 96, white blood cells 8,000 and 7,800. Weil Felix negative.

Course: This man became more toxic and died forty-eight hours after admission.

Autopsy: (Not including brain.) Showed lobular pneumonia, thrombosis of smaller vessels and perivascular lesions in heart, lungs, kidneys, spleen, adrenals, liver, skin and scrotum.

Case VII, W. M.: Male, age 40 years, admitted 6-24-34.

Family History and Past History: Unimportant.

Present Illness: This patient was well up until one week before admission when he complained of aching in legs, chills, fever and headache, which increased in intensity. On the third day after onset a macular rash appeared on forearms and legs, which spread over the entire body. There was no history of tick bite.

Physical Examination: This patient was moribund, and respirations were labored. A generalized eruption with many petechial hemorrhages was noted, but none could be found on the face. The scrotum showed a hemorrhagic area of beginning necrosis. The neck was stiff. Temperature 107, pulse 140, white blood cells 20,000. Weil Felix positive 1:160.

Course: This patient died three hours after admission.

Autopsy: (Excluding brain.) Showed an acute splenic tumor, early lobular pneumonia, perivascular round cell infiltration of skin, heart, testis, liver, tunica vaginalis and adrenals. Scrotum definitely necrotic.

DISCUSSION

It will be seen from the detailed description that the clinical course of these seven cases is in general consistent with the diagnosis of Rocky Mountain spotted fever. This is further supported by the epidemiological information. In one case the virus was recovered in guinea pigs and studied at the National Institute of Health. Dr. R. E. Dyer[3] has identified this virus as being that of spotted fever rather than of the closely related disease endemic typhus.

The symptoms were variable, headache, severe in character, being noted in all except case IV. It is noteworthy that this patient's early symptoms were extremely mild, though she ran a most severe and prolonged course. Vague abdominal complaints, tenderness of the skin to light touch and muscular soreness were found. Rigidity of the neck occurred in four of the seven cases, but only a few cells were found when spinal tap was done in three of these. It is not surprising that the early manifestations were confused with typhoid fever when high temperature, slow pulse and low leucocyte count were so frequently observed.

The rash, macular in character, first brownish-pink, appearing on the ankles, soles of the feet, palms of the hands, arms and legs, extending rapidly to the buttocks, chest, abdomen and back, spared the face in five of the seven cases. Later these areas became darker, but confluence and actual hemorrhage were rarely seen. In two cases, Nos. II and III, the macules were definitely raised from the surface during the most active stage of the disease. In case No. I the spots were so faint and scattered that their existence was denied by some observers. In association with the extremely mild character of the illness, not severe enough to make the patient take to his bed, the true nature of the disease could easily be overlooked.

Necrosis and hemorrhage of and into the scrotum a lesion rarely described in the Eastern type, was observed in two fatal cases, Nos. VI and VII.

In three cases delirium of varying degree was noted. Two, one fatal and one recovered, had actual coma.

In this series all four young individuals recovered. Of the three patients who were past middle life, two died and one escaped by a narrow margin. This is in accord with the usual experience as to prognosis

in relation to age. Case No. IV deserved especial comment. This sixty-eight-year-old woman went into coma, had to be fed by a duodenal tube, developed hemiplegia and yet today she is completely recovered. Murchison[4] in 1884 described a syndrome identical with this as occurring in typhus. The hemiplegia observed in this case might be considered incidental except for the fact that it cleared so quickly, which is taken to indicate that it was part of the disease process and not vascular rupture.

In four of these cases the temperature reached normal on the seventeenth or eighteenth day of their illnesses, which is in accordance with the usual duration of the disease. In the other case, No. V with recovery, the temperature lasted thirty-three days. No complications were found which would explain this variation.

Leucocyte counts were made in five out of the seven cases. Four gave a count under 10,000 in the early stage, which is at variance with the textbook description of this condition. The case showing a high count was moribund at the time it was taken. A positive Weil Felix (over a dilution of 1:80) was obtained in six of the seven cases. In the other case with death occurring forty-eight hours after admission inoculation of blood into a rabbit gave a positive agglutination in this animal. This procedure was carried out in five of these patients, and is being reported separately by Maxcy.[5]

The pathological findings, as far as they were available in the two partial autopsies which were performed, agree with those described in five cases of the Eastern type examined by R. D. Lillie.[6]

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DISCUSSION

DR. STAIGE BLACKFORD, Charlottesville: I can add nothing to the clinical discussion of Rocky Mountain spotted fever which Dr. Mulholland has so admirably presented. I simply want to emphasize the fact that this disease is not a medical curiosity in Virginia. Every physician practicing in this state, especially those living in the Piedmont sections, should have it in mind at least from April to September.

A mild case is easily overlooked, and may be diagnosed as typhoid or paratyphoid. A severe case going on rapidly to a fatal termination on the seventh to the tenth day may be passed over as a septicaemia due to other organisms. In cases that survive, the Weil-Felix reaction affords valuable confirmation, when the blood is taken about the end of the second week or during convalescence. We had found that, if blood is obtained from the patient during the first week of the disease and injected into a rabbit, this animal will give evidence of the nature of the virus by developing a Weil-Felix reaction just as do humans. This procedure is of particular value in confirmation of the diagnosis on cases which do not survive long enough to develop agglutinins for the proteus X_{19} and X_2. I want to emphasize the necessity of testing the sera from cases of this disease against X_2 as well as X_{19}, since the former may be positive, even when the latter is negative.

DR. J. C. FLIPPIN, University: There is very little time left for discussion of this paper, but I think there are one or two things worthy of emphasis. Looking back on my own experience, I am sure I have seen this disease over a period of a good many years. There was a time when I think we considered these patients as having atypical attacks of typhoid fever. After typhus fever had been described as existing in this part of the world, the diagnosis of typhus fever was unquestionably made in a certain number of these cases and rather naturally so as the two conditions resembled each other in some aspects. It is only within the last few years that we have known Rocky Mountain spotted fever as an endemic disease in the East.

It is highly probable that it is not a newcomer in our section, but its identity has remained unrecognized. I have seen a number of cases, the diagnoses of which have been substantiated by laboratory examinations, originating in the vicinity of Charlottesville and also in the Eastern portion of West Virginia. Judging from the number of cases that have come under my personal observation, it is probably not a very uncommon disease and is quite widespread in its distribution.

Our present knowledge of the methods of transmission indicates that the disease is gotten by the bite of the tick and is largely a rural disease. It is, therefore, very important for physicians practising in rural communities to be familiar with its clinical picture. Laboratory tests are of value, but the diagnosis can certainly be suspected and in many cases made with a fair degree of accuracy by study of the clinical course and the character of the eruption.

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DR. RICHARD MASON, The Plains: As Dr. Flippin has just said, this is no new disease. I lived in Colorado, on the western slope of the Rocky Mountains, in 1892 and 1893. There was a very common disease there then, known as mountain fever. I had it myself and saw others there have it, and I have not the slightest doubt that it was Rocky Mountain spotted fever. I was not practicing medicine at that time, but the symptoms, as I remember, that I had myself and that the men in camp with me had were very similar to those of what we now know as Rocky Mountain spotted fever. And there were lots of ticks there in the mountains, but nobody knew anything about the tick carrying it.

Just recently I have had a case that renewed my interest in this Rocky Mountain spotted fever—or at least this case was so diagnosed by the laboratory test in Richmond. That is what I wanted to ask Dr. Mulholland about, particularly. Two blood tests showed a positive reaction for Rocky Mountain spotted fever or endemic typhus fever. This case was mild and ran along for about two weeks. The rash was not profuse, but there was a rash. The temperature subsided at the end of about two weeks. At the end of four weeks I sent in another blood specimen, which was negative for everything, typhus, typhoid, or any of the other fevers usually reported. Now, what I particularly wanted to ask is this: Is there any way for the laboratory to diagnose spotted fever from endemic typhus? Another thing: how long after the fever subsides does the blood become negative? This woman's blood became negative about the end of the fourth week, I think. It had been reported positive from two former specimens sent in during second and third weeks.

You know the report from the laboratory usually says "Positive for Rocky Mountain spotted fever *or* typhus." I should like to know if there is any way other than by clinical symptoms and history to differentiate the two diseases. This lady is very anxious to know whether she had Rocky Mountain spotted fever or typhus. She rather resents the idea that she might have had typhus; she says there are no fleas in her house. I should rather like to be able to tell her that she had Rocky Mountain spotted fever, if it could be positively determined.

DR. MULHOLLAND, closing the discussion: The two diseases are strikingly similar in many of their characteristics; namely, the clinical manifestations and physical findings, and both give a positive Weil-Felix reaction. Typhus fever is more likely to develop in the winter months and is transmitted by the body louse or more frequently in this country by the rat flea. I know of no laboratory tests that will differentiate the two other than by guinea pig inoculation and cross agglutination tests.

The procedure that is being reported by Dr. Maxcy is one that will aid in the diagnosis. If from 3 to 5 c.c. of suspected blood are injected intraperitoneally or intravenously into a rabbit showing a negative Weil-Felix reaction, subsequent examination of this animal's blood will give a positive Weil-Felix if the individual has Rocky Mountain spotted fever in the majority of instances. This is, of course, of value as a diagnostic procedure to consultants who see a patient on the outside or when the patient dies before developing a positive Weil-Felix reaction.

The final diagnosis between Rocky Mountain spotted fever and typhus in these particular cases depended on epidemiological data, the time of the year and the fact that all of these individuals were either farmers or children who had been out in the woods and had been exposed to ticks.

Several varieties of ticks have been demonstrated to be capable of transmitting the disease—the wood tick, the dog tick and the rabbit tick. The latter being widely disseminated throughout the country are probably the principal carriers. Several other less common varieties can, under experimental conditions, transmit the virus.

I am glad that Dr. Flippin emphasized the fact that this disease was so often confused with typhoid fever. The early diagnosis in many of these cases was typhoid fever, which is consistent with the fact that they presented the signs of high fever, slow pulse and low leucocyte count.

PROPHYLAXIS IN HEAD INJURY.*

THOS. N. SPESSARD, M. D.,
Roanoke, Va.

There are few subjects in medicine more discussed, and in which as wide a diversity of opinions exist than in the treatment of head injuries. So many papers have been read on this subject that one might think any further discussion bordered on the triteness of repetition.

Statistics are confusing in any methods of head injury treatment, because fairly good immediate results are obtained in any type of treatment or even with no treatment. The weakness of the general present-day status in treatment of head injuries appears to me to be that it is directed almost entirely towards the immediate survival of the individual

*Read before the Southwestern Virginia Medical Society, Radford, Va., September 21, 1934.

rather than his ultimate function. This conception is against all well-founded medical and surgical principles. The fact that a patient will survive a fractured bone whether or not it be reduced is not held as a reason why proper and sufficient treatment should not be instituted. Ultimate proper function of the affected part should be the basis for all medical or surgical treatment. Brain injuries should be no exception. Relief of the traumatic condition should not be directed solely to the immediate clinical state, but the end-results of the head injury should be properly visualized as far as possible. It is toward the prevention of unfortunate end-results that this paper is directed.

Every doctor is familiar with the post-concussive patient. While there is a wide personal variation in their complaints, they include, in general, headache, dizziness, incoordination and loss of memory; frequently mild sensory or motor changes are present, although this is not constant. There are usually no localizing signs of a brain lesion on neurological examination, but X-ray after an injection of air frequently reveals striking findings, the main one being a diffuse cortical atrophy. I had such a case this spring. The patient complained of severe and constant headaches. He had received a head injury four years previously when kicked by a horse, with a prolonged period of unconsciousness. He was treated conservatively and gradually regained consciousness in the space of a week. Since that period he passed from doctor to doctor with the label of a neurotic. X-rays of the skull without air were negative, but after injection of 90 c.c. of air by the lumbar route an extensive diffuse cortical atrophy was found. This is a very good illustration of poor ultimate results in head injury. There is, of course, no adequate treatment for cortical atrophy. Its most common cause is prolonged compression of the intracranial contents, and there is every reason to believe that such a condition can be prevented by proper decompressive measures at the time of the original injury. Such, at least, is my own feeling.

In evaluation of the severity and extent of a head injury I believe that the depth and the time of the unconscious period are the most constant and important criteria. Pulse, blood pressure and other clinical evidences are important, but less reliable than the phase of unconsciousness. X-rays are also important, but whether there is a fracture present or not, is of little consequence either in the treatment or prognosis unless it be of the depressed type. All too frequently the relatives and, at times, the physician hear a negative skull X-ray report with a distinct feeling of relief. This is entirely a false optimism, based neither on fact nor experience. The protracted effort in attempting to determine whether some elusive line at the base is a fracture is important scientifically and legally but should not influence the treatment to any extent.

Treatment of head injuries is directed almost entirely towards two factors, namely: 1. Hemorrhage, and 2. Cerebral edema. The former, including the middle meningeal type hemorrhage, is universally looked upon as an operative emergency, and may be a relatively simple operative procedure as in some middle meningeal types, or extremely difficult, depending on its location and extent. Massive hemorrhages, however, occur in only a comparatively small number of head injuries, whereas the second factor, cerebral edema, occurs in every head injury. There is no possible way to prevent this edema. It is the one constant factor in brain trauma. All measures are directed entirely towards accommodating, if possible the cranial vault to the swollen cranial contents. Immediately after the treatment for general shock has been given, decompressive measures should be instituted without delay. The object is to save as far as possible prolonged compression of the cerebral structures. Mild measures should be used at first, in the form of magnesium sulphate or hypertonic glucose, or caffeine in large doses. All these tend to extract fluid from the brain and lessen the intracranial tension. If after a few hours of this type therapy, the conscious state is unchanged, spinal drainage may be tried, or all the above measures may be attempted together. None of them can do the patient any harm, all help somewhat, and are probably everything that is necessary in many cases. All of us have seen many cerebral injuries benefited by spinal drainage. I have seen none harmed by such measures, and feel that its value so far outweighs any possible contra-indications, that it should be done fearlessly and routinely. If these measures are proving successful, a change in consciousness should be noted as the index of improvement, together, of course, with general clinical observations. If the unconsciousness persists with no improvement after the above line of treatment

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for twenty-four to forty-eight hours, a decompression should be decided on and completed. Fortunately none of the measures used to combat cerebral edema involve much trauma or shock to the patient. The decompression is a simple procedure, can be quickly done, and usually under local anesthesia. The effects of decompression are a. times startling. If no immediate effects are apparent, you at least know that you have taken one more step in the protection of the brain structures under compression and are, as a consequence, less likely to get an unfortunate end-result. After decompression, the other measures, spinal drainage, glucose, etc., should be continued as before.

There is nothing to be gained by delay in doing a sub-temporal decompression. You can be guided only to a small extent by the patient's general condition. A decompression in my opinion should not be looked upon as a life-saving measure, but to a large extent as a prophylactic procedure to prevent the late unfortunate complications. The fact that the patient is in no immediate danger should not be considered. Decompressions have too long been considered heroic and an emergency type surgical measure. They should be done in prolonged states of unconsciousness early, and after deliberate evaluation of the effect continued pressure is bound to have upon the brain tissue, not the effect today, but the effect on the function of the brain through the remaining years. Permanent damage in head injuries to the brain is in a very small majority of cases not due to any real laceration or direct brain destruction. I firmly believe that until we have made every effort towards relief of cerebral edema in head injury that we have not in a full measure done complete justice to our patients.

In years past, the pendulum in treatment of head injuries has swung back and forth from the conservative to the radical, and then back towards the conservative. After all, may not the so-called radical forms of treatment in truth really be most conservative? No treatment is conservative that gives poor functional results, nor is any treatment radical that gives good functional results. The immediate effects in head injuries have, to my mind, too long over-shadowed the ultimate economic and social results. The object of this paper is to focus your attention not entirely on the *beginning*, but also the *ending* in cases of cerebral injury. It should not be sufficient that a patient *lives* after a brain injury, but that he be returned to society, an *asset rather than a lasting liability!*

I have had two cases within the last month that I believe are about average types of severe head injuries most frequently seen; and who illustrate some of the points I have stressed in this paper.

Case 1.—A white girl, of seventeen, had fallen from a swing in the park. She was removed to a hospital, there to remain under conservative treatment for two weeks, totally unconscious, with no improvement whatever. X-rays on two occasions were normal. Her general clinical condition was good. I saw her at this time—deeply unconscious, could not be aroused, incontinent. Neurological examination did not disclose any definite localizing signs, but there was present a low-grade choked disc, indicating a general cerebral edema. Spinal drainage resulted in no improvement. A fairly generous right sub-temporal decompression was done and when the dura was opened a definite bulging of the cranial contents was noted through the decompressed opening. I laid back a moderate amount of dura, leaving the arachnoid intact as far as possible, according to the Elsberg method, and closed the muscle and fascia as usual. The actual operation requires about forty minutes, and is very little more traumatizing than a lumbar puncture. This patient made rather startling progress. She knew and spoke to her mother for the first time the next morning, and the choking of the discs was completely gone five days after the operation. I do not contend that this patient would have died without operation; it is unlikely. I do feel, however, that if this case could have come to operation earlier, the brain tissue would have been saved prolonged compression and damage; the unconsciousness for so long a period could have been avoided, the hospitilization decreased, and the likelihood of poor ultimate functional results materially lessened. The patient is now discharged and I am wondering if she too will be added to the already large army of post-concussive misfits.

Case 2.—White man, twenty-seven, a druggist. While driving in a car, struck a bridge and received a depressed fracture of the left frontal bone, X-ray showing one large and several small fragments impinging on the cortex. Was unconscious for six hours, but showed only mild concussive symptoms

following. He also received a badly lacerated scalp near the site of the fracture which had been repaired before he came to Roanoke. He was kept under close observation at home and showed no pressure signs except a moderate increase in reflexes on the side opposite the fracture. No Babinski, or sensory changes. The laceration healed slowly and there was a low-grade infection present, which was given every opportunity to subside before operation, to prevent the danger of a post-operative meningitis. After approximately six weeks it was felt safe to operate, and a flap was laid back. It was found that the dura had been split and a small amount of macerated brain tissue was found entirely outside the skull itself. A decompression was done, and the bone fragments were removed. The larger fragment was apparently necrotic and was forming a sinus through the skin laceration. The sinus was dissected out and the flap closed as usual with drainage. This patient was at no time uncomfortable and is now entirely well.

I believe these cases illustrate very well those in which prophylaxis in head injuries should be practiced. In neither case was the operation performed to save life. In the first instance the patient was operated upon in order to prevent additional brain compression and damage. While it should have been done sooner, every day a brain is compressed is decreasing the likelihood, not of physical recovery, but rather of proper psycho-motor function, as an end-result.

The second case suggests, I believe, that the depth of cerebral edema and unconsciousness depend not on what amount of force has struck the cranium, but to what extent the entire brain itself has been shaken up in the process. It is not compression of a small area of the cortex as by a bone fragment that is important, but rather the generalized swelling of the whole cranial contents that endangers life and ultimate recovery. Depressed fragments should, of course, be removed as a prophylactic measure, as soon as conditions permit, but it is brain edema that is important, not the fracture itself.

In conclusion, I do not wish to leave the impression that I advocate indiscriminate operations in head injuries. Every injury naturally must be considered as a specific problem, but I do urge that prompt, vigorous, and active treatment for relief of cerebral edema be instituted in every severe case of head injury, the extent of the treatment being governed in a large measure by the state of consciousness. No new types of therapy are given here, but I believe a wider and more persistent application of our present methods of treatment will bring better end-results to our patients and a greater satisfaction to ourselves.

DISCUSSION OF RUBIN TEST AND HYSTEROSALPINGOGRAPHY IN STERILITY.*

JOSEPH BEAR, M. D.,
Richmond, Va.

The primary object of uterotubal insufflation and the injection of lipiodol was to aid in the diagnosis of tubal cause of sterility. With increased study and clinical experience a therapeutic value has been established. The apparatus for the insufflation of the Fallopian tubes was devised by Dr. I. C. Rubin, of New York.

The writer has added a few minor details in the arrangement of this apparatus and has designed a cabinet suitable to be kept in the office which offers a maximum protection to the delicate glass work and component parts.

Some of the salient features in using this apparatus are as follows: a low pressure-rate flow of CO_2 gas—this is regulated by the reduction valve attached to tank. It is so graduated as to give forth a constant and even flow of gas. This valve is regulated to ten pounds of pressure. It is important to try out the rate of flow before the actual test is made, e. g., fifteen seconds is required to raise the mercury column to 100 mm. of Hg., for, when this occurs, there is a certain degree of uniformity for the passage of gas into the tubes. If this is not carefully followed, one is apt to cause a sudden, forceful, irregular and uncertain insufflation of gas

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and may produce traumatic and harmful results. Slow and careful introduction of the gas is the keynote of its performance.

The above apparatus is more efficient than the bulb or syringe devices recently modified, for no hand-pressure can be as even and steady as a finely adjusted mechanical valve. Furthermore, the introduction of air instead of carbon dioxide gas increases the chances for air embolism.

Rubin uses the kymograph so as to maintain a permanent record of the tubal status. He points out that tubal strictures and peritubal adhesions may be more accurately determined. In addition, he makes use of the fluoroscope which serves as a practical guide to the type of patency.

The test is not applicable to all patients; each case must be properly selected in order to obtain satisfactory results. There must be no bleeding present, no elevated temperature, no pelvic tenderness, no sub-acute tubal inflammation, no tumors or purulent discharge. The patient must be free from serious cardiac or respiratory disease. It can readily be seen that if the test is employed in the presence of infection in the generative tract an acute exacerbation of an old chronic lesion will be brought to the surface,—the test will prove fruitless and new pathology produced. Even when the cannula is first introduced and bleeding occurs, no further attempt should be made with the test, for it is an index to an inflammatory process in the cervix or endometrium.

Perhaps the most suitable time for the performance of the test is about seven days after cessation of a regular menstruation. The endometrium is then in a quiescent state and one is less apt to meet with cases of early pregnancy if the above stated post-menstrual interval is observed. Coitus or douche should not be permitted before test is made.

In normal (open) tubes no more than 20 to 30 mm. Hg. is required to keep up the flow of gas. As a safe rule to follow, it is best not to exceed a pressure of 200 mm. Hg. in any given case.

The test is a comparatively safe office procedure and no anesthetic is required.

TECHNIC

I employ head mirror with reflection obtained from electric globe installed above examining table, thus insuring a better vision of the exposed field. The patient is placed in the lithotomy position, and vulva bathed with lysol solution. DeVilbiss bivalve speculum is introduced into vagina, and cervix and vagina swabbed with iodine and alcohol, equal parts. A short Staude tenaculum forcep is placed transversely on anterior lip of cervix. The cannula is now inserted into uterus and during insufflation gentle traction is made on tenaculum.

A drop in intrauterine pressure during an examination means that gas has passed through one or both tubes. A pressure of 200 mm. on repeated trials indicates the closure of both tubes. When tubal occlusion (spasm) is found, the administration of tincture of belladonna several days prior to the test may bring about a subsequent patency.

Pain may be present in one or both shoulders. This symptom is observed in over 90 per cent of the cases in which gas has passed into the abdomen and is very positive evidence that the tubes are patent. In the presence of non-patency, there is, as a rule, some pain referable to the tube affected and also in region of uterus. Lateral abdominal pain indicates isthmical obstruction and pain radiating towards flank suggests an obstruction at ampulla. Abdominal auscultation and careful study of the pain reaction will often serve as a guide to the location of the obstructed tube.

Peruterine insufflation seems to exert a therapeutic influence as manifested in several ways: by establishing patency of the generative tract; the "pin-hole" os associated with a hypo-developed uterus may be partially dilated by the introduction of the cannula which renders it more patulous for the reception of semen; it separates minute adhesions of the folds of tubal mucosa; tends to straighten tubal tortuosities, especially the infantile type; may dislodge a thickened mucus from a narrow to a wider portion of the tube and may cause separation of small adhesions at fimbriated extremity.

Insufflation was employed by Rubin as a diagnostic and therapeutic measure in 2,273 cases of sterility, and in 154 additional cases for other indications. In a total of 3,600 insufflations, there were no serious sequelae in the cases considered.

Tubal insufflation appears to have definite therapeutic value in sterility. This is demonstrated by actual improvement in tubal patency and function during prolonged or repeated insufflation, and by pregnancy which follows soon afterwards. Of 398 patients who became pregnant after insufflation, 123

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or 21.58 per cent had peritubal adhesions or stenosed tubes. In this respect insufflation may be considered as a non-operative method of salpingolysis. There were 67.59 per cent of the pregnancies that took place during first six months after insufflation, 42.21 per cent within two months, and 27.89 per cent within one month after insufflation. Of the 244 primary cases of sterility who became pregnant, 22.13 per cent had been married for over five years before they were treated by insufflation. Of the 154 secondary cases who had found themselves unable to conceive for five years or longer after their last pregnancy, 44.15 per cent also became pregnant after treatment. Pregnancy followed in twelve women who were sterile more than fifteen years. Insufflation was the only treatment employed in 247 of the 398 cases that became pregnant (62.06 per cent). Improvement of dysmenorrhea followed insufflation in 66.6 per cent of fifty-seven patients (Rubin.)

LIPIODOL INJECTION OF THE UTERUS AND OVIDUCT

This preparation is a definite chemical compound in which 40 per cent of iodine is firmly bound to poppy seed oil. The technic was originated by Dr. Jacques Forestier. Lipiodol is non-toxic and non-caustic, and ordinary tests fail to reveal the presence of iodine. The mixture is thoroughly impervious to the roentgen rays. Lipoiodine (Ciba) is used by some but the preparation selected in my own work is lipiodol as the consistency of the latter is much thicker, less irritant, more radiopaque and minimizes the chances for regurgitation.

The indications and contraindications to the use of the iodized oil are identical with those governing tubal inflation. Secard and Forestier employed it in several thousand cases without sequelae. However, if care is not exercised and the oil is rapidly injected into uterus, complications may ensue, such as fat embolism, iodism, accidental vascular injection into iliac and ovarian veins, local irritation, and rarely pelvic abscess. Infectious complications usually result from the reactivation of a previous injection.

To avoid these, aseptic precautions should be taken together with slow injection of small doses and low pressure, and no untoward results need occur.

The roentgenograms permit accurate prognosis in cases of tubal occlusion. The oil serves as a contrast medium and is useful for outlining the uterine cavity and the lumina of the tubes, when open. It further provides a record of patency when peritoneal spill is shown on the film. The phenomenon of spasticity is also demonstrated with the aid of this oil.

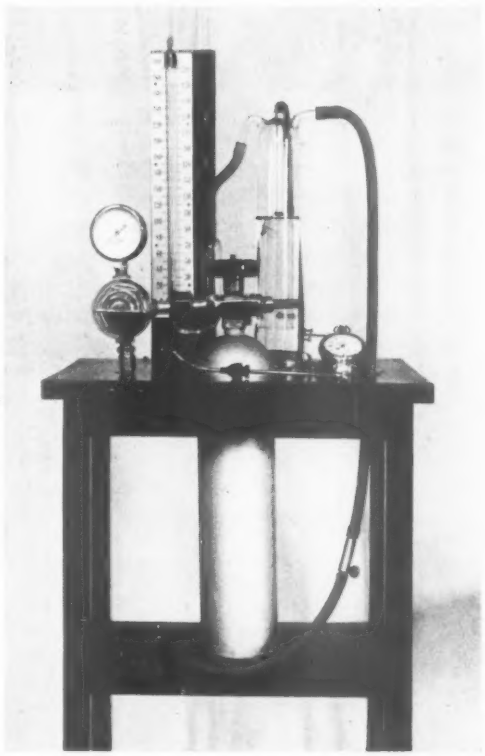

Fig. 1.—Apparatus for Rubin Test. Apparatus arranged and cabinet designed by the writer.

Incidentally, brief mention may be made here that lipiodol when injected into uterus establishes an early diagnosis of pregnancy. When the evidence is positive, there is a characteristic X-ray finding which is frequently spoken of as "atony of uterus." This method, if employed, should be only in the presence of tuberculosis, cardiac decompensation and toxemias, and when a therapeutic abortion is being considered. At present, however, the rabbit test serves as a more reliable diagnostic procedure.

Writer's Technic: Simple enema is given several hours before test is made. Painting of vulva, vagina and cervix with 5 per cent mercurochrome solution. Exposure of cervix with Stein's bi-valve

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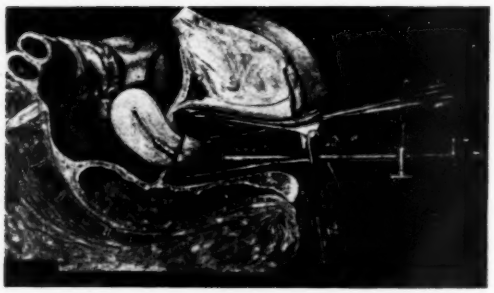

Fig. 2.—Showing instruments used in lipiodol technic.

speculum; application of the cannula which fits in a groove on posterior blade of speculum. This combined set is self-retaining and facilitates this work. Injection is now slowly made of warm lipiodol (averaging about 4 to 6 c.c.), the anterior lip of cervix being held transversely by a Staude tenaculum. After a period of five minutes the first X-ray exposure is made with patient in the dorsal recumbent posture, and following a similar second period the speculum and cannula are removed and, with patient in lateral prone position, a second exposure made. Five minutes later, with patient now in state of pronation, the third roentgenogram is made.

With all the above postures the hips should be elevated so as to favor passage of the oil into peritoneal cavity. In certain cases it may become necessary to make film in twenty-four hours, since the oil occasionally drifts through a supposed complete obstruction.

After the completion of both Rubin and oil tests, a tampon is placed in vagina for several hours so as to prevent the escape of blood and oil, which ordinarily follows.

COMMENT

In order to make a complete survey of every sterile woman, accurate knowledge of the tubal status is necessary.

In the last few years I have combined the use of Rubin test (pneumoperitoneum) and lipiodol and am convinced that the combined method is of far greater diagnostic value than either of the above mentioned methods alone. The former test is made at the office, and twenty-four hours later at the hospital the oil injection is carried out. Rubin test is painful (when patency exists), and where lipiodol is used the process is practically free from pain.

Fig. 3.—Rubin 140 Hg.-200 Hg. Lip. Shows a fairly small uterus with rather prominent cornua but none of the oil has passed out into the tubes. (Author's case.)

Fig. 4.—Rubin 200 Hg. Lip. Uterus normal size, contour and position. Both tubes are filled and some of the material has extended out into the abdomen. Pregnancy followed. (Author's case.)

Fig. 5.—Rubin 200 Hg.-190 Hg. Lip. Small uterus probably not completely filled. Right tube partially visualized. Left tube not visualized. Twenty-four hour examination shows solution is scattered throughout the lower peritoneal cavity. Pregnancy followed. (Author's case.)

With lipiodol the following information may be readily obtained: the location of tubal obstructions; uterine myomas and submucous growths; pelvic diagnosis in very obese women. In a large group of sterility patients it seems possible, with the aid of roentgenograms, to determine when surgical relief is indicated.

Francillion-Lobre and Dalsace, of Paris, on the basis of their experience with 500 hysterosalpingographies, recommend it as a therapeutic measure of the first rank in sterility. They found that a fairly high percentage of the young women on whom these tests were performed for purely diagnostic purposes became pregnant.

Some few observers believe that intervention can disturb the function of the tubes by producing an irritation or inflammation of tubal mucosa which either prevents the ascent of spermatazoa or the descent of the ova, in the latter case favoring ectopic pregnancies. Greenhill says, "the occurrence of ectopic pregnancies after the use of iodized oil is rare, just as it is after the Rubin test. However, whether there is any causal relationship between these tests and the tubal pregnancies, it is difficult to prove in most instances."

The writer is of the opinion that the action of lipiodol could not prejudice future conception. It may have some beneficial or stimulating effect on the tubal mucosa.

Both tests have an established place and are definitely diagnostic and at times therapeutic. They have passed well beyond the experimental stage. Rubin test may be repeated several times at selected intervals. Occasionally, pregnancy may follow when the gas and oil test have demonstrated the tubes to be apparently occluded.

By any type of indirect therapy we shall always beget some failures. We must be grateful, however, for such valuable allies in this mysterious field of sterility in the female.

301 E. Franklin St.

CHRONIC LEAD POISONING IN EARLY CHILDHOOD.*

H. H. DONNALLY, M. D., C. A. SCHUTZ, M. D., and A. NIMETZ, M. D.
Washington, D. C.
From the Pediatric Department, School of Medicine, George Washington University, and the Children's Hospital

The frequency of the diagnosis of chronic lead poisoning in early childhood is likely to be increased by the easy availability and ready recognition of zones of increased density in the ends of the rapidly growing bones of the skeleton. In this country studies made by Park and his associates, Caffey and Vogt, have been outstanding in establishing the occurrence and explanation of this valuable and probably constant sign of chronic lead poisoning in childhood. The studies of these workers have been based upon carefully observed cases, thoroughly studied postmortem material, and animal experimentation. In one of the cases reported herewith the

*Read before the Medical Society of the District of Columbia, April 18, 1934.

discovery of the zones of density at the ends of growing shafts resulted from routine X-ray studies of the long bones.

It has been known for many years that young children could be the victims of lead poisoning, Thomas and Blackfan having reported in 1914 recurring meningitis in a child of five years due to lead. In Japan, cases have long been recognized, and, according to Kato, their study respresents Japan's greatest contribution to pediatrics. Like other discoveries, a search of the literature reveals that lead poisoning has been known a very long time and in various parts of the world. Babies and children may take lead into their bodies by ingestion or by inhalation. Lead nipple shields used by nursing mothers have been responsible, as well as ointments containing lead acetate used for cracked nipples. Lead chromate used by bakers to give a yellow color to cake has been a source. Lead in cosmetic powders, lead from water pipes, lead from painted toys, woodwork in homes, beds and cribs, have all been incriminated. An unusual source of lead by inhalation occurred in Baltimore, in 1932, where forty-three cases of lead poisoning occurred among twenty poor, colored families, who used discarded storage battery casings for fuel in cooking, heating and even bedroom stoves. Lead was proved to be present in the casings and in the smoke from their combustion.

Some neuropathic children manifest a perverted appetite known as pica, eating unusual things such as soap, ashes, dirt, plaster of walls, particles of blankets and clothing, and paint off various objects in their homes. This habit becomes very strong in them, difficult to check, gives rise to repeated attacks of lead poisoning, and finally may kill or maim them, although the family may have been informed by the pediatrician of the source of the symptoms, the danger to the child, and the means of prevention. The first two cases here reported in children in their third and fourth years are of this type. Nibbling painted woodwork, toys and furniture is an inveterate habit not yet controlled in them.

The poisoning by lead generally observed in children is due to its repeated entrance into the body over weeks or months and even longer, and is therefore a chronic poisoning. There may be a certain degree of pallor; irritability and altered disposition are noticeable, accompanied by lack of appetite, abdominal cramps, vomiting and constipation. One of the cases reported below with these symptoms was suspected of appendicitis and admitted to the hospital for observation for a day to rule out this disorder. Returning ten days later the true diagnosis was established before serious nervous symptoms were present.

Some of the children when first seen have striking nervous manifestations closely resembling meningitis and accompanied by severe and prolonged convulsions which are difficult to control. The spinal fluid in such cases may show a pronounced increase in globulin, and an increase in cells from ten to 100, averaging twenty-five to forty cells, made up chiefly of lymphocytes. Drowsiness, stupor or coma may be present. There may be automatic, repetitive movement of one extremity such as an arm, forearm and hand. When paralyses are present, the lower extremities in children are more likely to be affected than the upper. Ophthalmoplegias may be present. Examination of the fundus oculi may show papilledema, retinal hemorrhages or optic atrophy.

If the physician confronted with the milder or more severe manifestations mentioned above can keep lead poisoning in mind as a possibility and secure X-ray pictures of the long bones, the diagnosis may be practically established by the findings, for the picture is so striking. At the end of the shaft adjacent to the cartilage the newly formed bone shows a zone of increased density, which Caffey demonstrated to contain about four or five times as much lead as other parts of the shaft, and which Park has shown to be due further to an increased number of trabeculae densely crowded together.

Histologically the crowded trabeculae, and chemically the tertiary lead phosphate are the factors causing the increase in density of the shadow. The depth of the lead zone indicates the growth of bone which has taken place since the beginning of the process.

In Case I, below, in the lower end of femur a dense shadow 5 mm. in thickness was found on June 26, 1933, when she was two and three-fourth years old, while a transverse line 1 mm. in width and 20 mm. from the epiphyseal line probably represents what was originally the end of the shaft when lead was first deposited in the growing femur, some weeks after she began to eat paint. This cor-

responds to the history given by the mother that she began eating paint about one year of age. Seven months after the first films of the lower extremities, new films show the dense zone to have more than doubled in width, and the line representing the original cartilage shaft junction is 28 mm. back from the growing end of the shaft. This entire 28 mm. depth of bone at the end is denser than the shaft, but not uniformly dense, and the greatest density at the end shades off but only slightly until 10 or 11 mm. away, where the density is irregular but greater than the shaft above. The original line shades off on both sides of it.

When one gets such a picture there is probably nothing else than lead to give it, at least so far as is now known. Bismuth administered in the treatment of congenital syphilis may possibly cause a zone of increased density at the shaft cartilage junction. It has been reported by Park in an infant given both bismuth and viosterol. Elementary phosphorus administered therapeutically stimulates such an intense formation of bone that a dense shadow is found in the same area; according to Park the phosphorus and lead formations are totally different. Healthy children and especially those who have been given viosterol may show a dense shadow at the ends of the shafts; also the bones of healed rickets may do so. These zones may resemble lead zones of short duration, but not the lead zone of long duration. Scurvy and congenital syphilis may likewise present dense but relatively narrow shadows at the shaft cartilage junction. Their histologic pictures are different, and there is no difficulty in distinguishing them from the lead zone. Transverse lines marking arrests in growth are sharply outlined and lack the breadth of the zones of increased density due to lead; in short, they are lines and not zones.

Park has brought out the fact that in the growing child, the different bones grow at differing rates, and even the proximal and distal ends of the same bones grow with differing rapidity. "In early childhood the order of rapidity of growth is as follows: the middle ribs; the lower end of the femur; the upper end of the femur; the upper end of the humerus, together with both ends of the tibia and fibula; the lower ends of the radius and ulna; the lower end of the humerus; the upper end of the radius; the upper end of the ulna." "The only parts of the skeleton in which lead zone formation becomes characteristic are at the points of rapid growth."

Among other cardial signs of lead poisoning is the lead line in the gums, which, if searched for with great care, may be found in one of three victims among children. It is less frequently present in them than in adults.

The anemia associated with the disorder is secondary, of moderate severity usually, with hemoglobin about 50 per cent (8 or 9 grams of acid hematin) and a moderate reduction in the number of red cells. Basophilic stippling of red blood cells is present in the majority of cases, but requires at times repeated search to demonstrate. Films should be stained with a good polychrome stain. In some children with lead poisoning it may not be possible to demonstrate basophilic stippling.

Certain workers have demonstrated lead lines in the spectrum of the ash of blood and of cerebrospinal fluid. Recently Shipley, Scott, and Blumberg reported the spectrographic detection of lead in 5 c.c. samples of the bloods of nine patients, using six normal bloods as controls.

Lead may be demonstrated in the excreta, and the tissues and organs of the body, but the salts of lead have a great affinity for the cartilaginous intercellular substance very similar to calcium salts, and "an ever-increasing percentage of the total absorbed lead comes to be stored in the bones."

The diagnosis suggested by the earlier symptoms may be acute appendicitis or other gastro-intestinal disorder, as in the first two cases here reported. Cases presenting convulsions, automatic movements, stupor and coma, resemble tuberculous meningitis. Other cases resemble cerebral or cerebellar tumor. The X-ray shadows of the growing bones of young children are of the greatest aid in diagnosis, diminishing in value after five years of age.

The prognosis must be guarded, as a rule, because lead is constantly appearing in the circulation and may occasion symptoms of meningo-encephalitis. If the intake of lead can be stopped, there is a better chance for recovery. As indicated above, failure to control the child who eats paint has been rather frequent among these patients. Lead encephalitis may leave grave residuals, mental and physical.

Differences of opinion exist as to the best means of treatment, aside from measures directed to the

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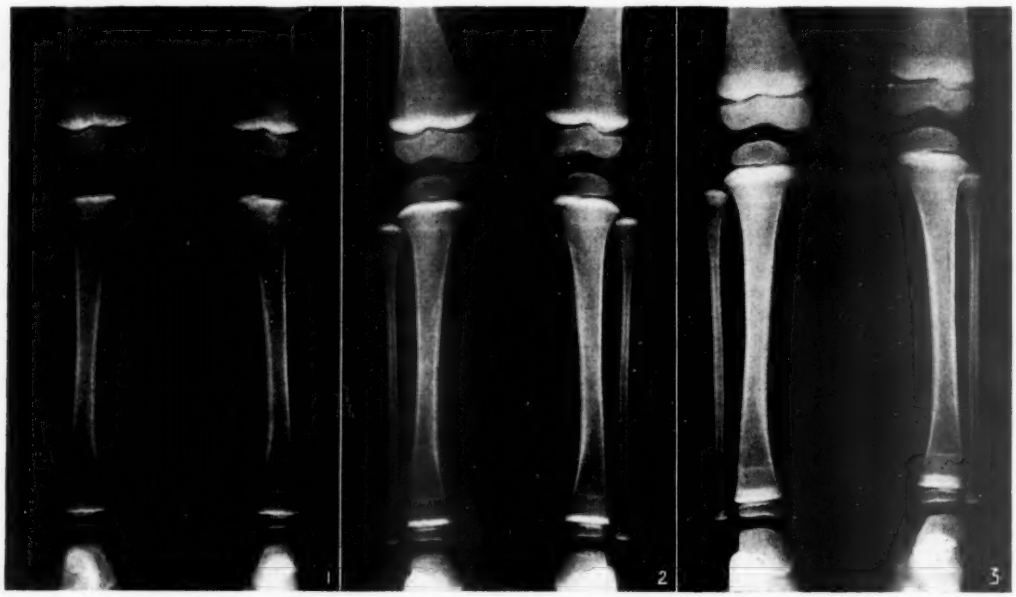
control of symptoms, such, for example, as vomiting and convulsions. Calcium lactate by mouth, or calcium chloride intravenously may be used. Hunter and Aub have shown that much of the lead may be removed from the body by the administration every eight hours of parathyroid hormone. If a child keeps otherwise well, and takes in no more lead, it is possible for him to eliminate slowly what he has stored, and to recover.

REPORT OF CASES

Case 1.—Doris G., a white girl aged two and three-fourth years, was brought to Children's Hospital on June 23, 1933. She had been born at term after a normal labor. The birth weight was 6-13/16 lbs. Successfully vaccinated when six months old. At two years she had had whooping-cough; she had also had occasional colds. She had been breast-fed for two months, then modified cow's milk was used. Cod-liver oil and orange juice had been given since two months of age. She was now on a three-meal regimen. The mother brought the child because she was irritable and stuporous. She had a poor appetite, would eat little and had recently been vomiting twice a day after eating. She was constipated. She had a fairly good color, her nutrition was fair; her weight being 24 lbs., was 5 or 6 lbs. below the average; the height, 32 inches, was within normal limits. The physical examination was essentially negative. She was given castor oil and her food restricted. Three days later she returned; the vomiting had not recurred, but she was still constipated. The nervous symptoms were increased; headache had been present for three days; there was irritability; she was stuporous at times, at others sleepless. The mother stated that the child ate paint off her play pen, toys, bed, the banister rail, the woodwork in the house, especially about the doors and windows. This had been going on since she was one year of age.

With this history the probability of lead poisoning was suggested.

No lead line in the gums could be found, a magnifying electric otoscope being used. The urine was cloudy, acid, 1034, albumin 60 mg. per 100 c.c., a questionable trace of sugar, acetone and diacetic acid absent; microscopically there were occasional white blood cells, and a few red blood cells, but no casts.



Three X-ray pictures of the long bones showing progressive increase in the width of the lead zones at the growing ends over a period of 7 months, due to the continued ingestion of paint (see text for description).

1. Doris G., aged 2¾ years, June 26, 1933.
2. Doris G., aged 3 years, September 23, 1933.
3. Doris G., aged 3 years 4 months, January 27, 1934.

Date: June 26, 1933		*Sept. 27, '33*	*Nov. 11, '33*	*Jan. 26, '34*	*Feb. 3, '34*	*Mar. 17, '34*
Hb.	9.64 g., 57%	8.12 g., 48%	10.82 g., 64%	11.3 g., 67%	10 g., 59%	
Red cells	3,850,000	3,250,000	3,790,000	3,730,000	4,350,000	
White cells	10,200	9,300		12,275	18,400	
Lymphocytes	49%	24%		38%	37%	
Endotheliocytes	0	0		6%	0	
Polymorphonuclears	51%	76%		52%	63%	
Stippled red cells	0	0	0	0	0	Numerous; in some fields several present.

X-RAY FILMS (SEE REPRODUCTION)

June 26, 1933: The femur shows a dense shadow at the lower end of the shaft, 5 mm. in thickness; it is not uniformly dense. The greatest density is in the zone closest to the cartilage. The shadow diminishes in degree the further back from the junction of cartilage and shaft it goes, shading off in intensity, but definitely of a greater density than the shaft. A transverse line 1 mm. in thickness having the same contour as the lower end of the femur is found in the shaft 20 mm. from the epiphyseal line. This line shades off into the shaft on both sides of it. In the zone between this transverse line and the dense shadow at the junction of the shaft and cartilage there are less marked, but definite transverse lines, rather broad and of variable density. The lower end of the femur for a distance of 20 mm. thus presents a striking picture.

The two femurs are affected symmetrically. Both upper and lower ends of the tibiae and fibulae are similarly altered, presenting the dense zone at the junction with the cartilage shading off toward the shaft, the definite transverse line 10 mm. back from the epiphyseal line and increased but variable density in this zone.

October 17, 1933: Lower ends of radius and ulna of both arms present dense shadows 2 mm. in thickness at the ends of the shaft with a transverse line about the thickness of a line up in the shaft 10 mm. from the epiphyseal line.

January 27, 1934: Lower end of the femur: the zone of density at the end of the shaft has more than doubled in width to 11 mm., and its density is greater. The transverse line across the shaft is now 28 mm. from the end of the shaft, due to the growth of the bone. It is now no more than a line in thickness and has lost much of its density in seven months. Both ends of tibiae and fibulae show similar changes.

Progress Notes—September 13, 1933: "Mother states that the child still eats paint as previously described."

October 7, 1933: "Still chewing her crib and painted woodwork about the house."

November 11, 1933: "Mother reports that she has stopped eating paint."

February 3, 1934: "About two weeks ago ate paint off a toy. She has grown 4½ inches—to 36½ inches—and gained 6½ lbs.—to 32 lbs.—in the past seven months. Her anemia is a mild secondary anemia showing a little improvement in the seven months. She is still ingesting lead and as long as this continues, the outlook is serious."

March 17, 1934: "No eye evidences of lead poisoning, extra-ocular muscles, discs, nor retinae. Stippled red blood cells are moderately numerous, some fields containing several stippled cells."

Case 2.—Norma B., a white girl, aged four years, was first seen October 1, 1932.

She had been born at term, with instrumental delivery, the birth weight being 6 lbs., 10 oz. She was fed at the breast for seven to eight months, and then was given modified milk, with orange juice and cod liver oil. Dentition started at six months. She had walked at one year, and had begun to talk at fourteen months. She had had frequent colds. Vaccination at one and half years had been successful. Other infections included: whooping-cough at three years, chickenpox at three years, and occasional sore throats.

She was well developed and nourished, her weight being 37 lbs., 9 ozs.

Three days before (9-28-32) she had vomited several times and complained of abdominal cramps,

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had no appetite, and was constipated. She had vomited similarly about a month before and had had other vomiting attacks for two or three years. The temperature was 99.8° and the pulse rate was 100. She did not appear sick. There was a systolic precordial murmur. Otherwise the examination was negative. The urinalysis was normal.

The leucocytes were 14,800, with polynuclear neutrophiles 89 per cent. She was in the Children's Hospital one day only at this time. Ten days later (11-11-32) she was readmitted with the following history: She had vomited twice since leaving the hospital. Since last seen she has been sucking the paint off her bed and chewing paint from woodwork, toys and elsewhere. As an infant she ate dirt; she has eaten paint from various articles. For the past eight-ten months she had intermittent, severe abdominal pain referred to the umbilical region. Her temperature during the next ten days in the hospital was normal except for a rise of a few tenths of a degree occasionally. She showed a slight pharyngitis; otherwise the physical examination was again negative. The urine showed a slight trace of albumin and a few leucocytes. The hemoglobin was 58 per cent (Newcomer) or 9.81 grams of acid hematin, the erythrocytes numbered 4,700,000, and the leucocytes 9,200, with 58 per cent polynuclear neutrophiles. Stippled red cells were searched for several times unsuccessfully. The stools showed no ova or parasites.

X-ray films of the femur showed a dense shadow 3 mm. wide at the junction of the shaft with the cartilage, shading off into the diaphysis. The lesion was symmetrical. The upper and lower ends of the tibiae and fibulae were similarly affected with somewhat narrower zones of density at the ends of the diaphyses.

Efforts to follow her up within the past few weeks disclosed that she had moved away from the city.

Case 3.—Lillian B., a colored girl, aged twenty-three months, was admitted to Children's Hospital on June 21, 1932, and was taken out by mother three weeks later on release. She was born at term, after a normal labor.

Her birth weight was 9 lbs., 2 ozs. She had been breast fed for three months, then artificially. The mother stated that the baby had been vomiting several times daily for the preceding three weeks. She refused her feedings, but the bowels were said to be regular.

Physical examination disclosed an apparently slightly sick infant, poorly nourished, weighing 19½ lbs., with an irregular, intermittent, low grade fever, maximum 101° by rectum, becoming normal in ten days and remaining so. She appeared to be anemic and somewhat dehydrated. The tonsils were large, cryptic and infected, with regionally enlarged nodes.

The examination was otherwise negative. Her appetite was so poor that feedings were forced. She vomited moderately and had a tendency to constipation. Tuberculin and Wassermann tests were negative. The urine showed a trace of albumin and a few leucocytes. The hemoglobin was 56 per cent (9.47 grams of acid hematin), the erythrocytes numbered 4,300,000, and the leucocytes 13,300, with 76 per cent polynuclear neutrophiles. Stippled red cells were not found. She lost two pounds during the three weeks she was in the hospital. The day before she was taken out on release by her mother, the leg, forearm and hand bones were radiographed. The characteristic broad area of density in the growing zones at both ends of the tibiae and fibulae and lower ends of the radius and ulnae were found. A follow-up after discharge revealed that she had died three days after removal from the hospital. The source of the lead which caused her poisoning and death was not ascertained.

SUMMARY

In chronic lead poisoning of early childhood, the occurrence of zones of increased density in the ends of the rapidly growing bones of the skeleton, as revealed by the X-ray, has been demonstrated as a practically constant finding.

Where symptoms of otherwise unexplained, recurrent, digestive disturbance, abdominal cramps, or meningeal irritation are present, the roentgenogram of the long bones provides a ready means for diagnosis of this condition.

Three cases of lead poisoning in children under five years of age have been presented, in which the diagnosis was made possible by means of X-ray examination of the long bones.

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1612 I (Eye) Street.

THE CAROTID SINUS REFLEX AS A CAUSE OF FAINTING AND CONVULSIONS.

JAMES P. BAKER, JR., M. D.,
Richmond, Va.

The role of the autonomic nervous system in the control of the circulation has been recognized for some time. This system is in part made up of two sets of afferent nerve fibers, arising in the blood vessels throughout the body. The *pressor* fibers are sensory fibers which when stimulated cause a reflex vasoconstriction, increased blood pressure, and acceleration of the heart. Stimulation of *depressor* fibers give rise to a vasodilatation, decreased blood pressure, and slowing of the heart. The normal stimulus which gives rise to these reflexes is the intravascular pressure. For example, a general increase in blood pressure would stimulate the depressor fibers, setting up a reflex which would result in a vasodilatation, thus restoring the normal conditions. This interplay of pressor and depressor reflexes is so delicate that normally the heart rate and blood pressure are kept at quite constant levels.

Although these sensory fibers are scattered throughout the vascular system, there are regions where they are concentrated, forming a very sensitive point of control. Until recently, the most sensitive of these was thought to be located in the arch of the aorta, giving rise to the arotic depressor nerve. When the aortic pressure rises too high, there is set up a reflex resulting in slowing of the heart and vasodilatation.

Recent studies have shown that another highly specialized part of the pressor-depressor regulatory system is located in the carotid sinuses. Anatomically, the carotid sinus is a bulbous dilatation of the internal carotid artery just after it leaves the common carotid. In the adventitial coat of the artery at this point, there is a fine plexus of nerve fibers with specialized end-organs. These fibers run together to form a definite nerve, the intercarotid, which follows the glossopharyngeal nerve as far as the medulla and enters the vagus nucleus. Other smaller nerves run directly to the superior cervical sympathetic ganglion.

The function of the carotid sinus was not recognized until quite recently. As early as 1799, Parry[1] called attention to the fact that pressure over the carotid arteries resulted in a slowing of the heart, sometimes quite marked. About seventy years later, Czermak[2] made the same observations. He attributed this to direct mechanical stimulation of the vagus, which had been shown to be an inhibitory nerve to the heart. It was not until 1923 that Hering[3] showed that such slowing of the heart could be caused by pressure over the carotid sinus even when the vagus was separated from the artery, thus establishing the fact that a true reflex was involved. This reflex has its afferent limb in the intercarotid nerve, its synapses in the medulla, its efferent limbs through the vagi and the sympathetic system.

Since Hering's discovery, there has been a great deal of experimental work in animals. In general, the facts established are: 1.—that increased pressure in the carotid sinus causes a slowing of the heart, vasodilatation and fall in blood pressure, whereas decreased pressure in the sinus gives rise to the opposite effects; 2.—that all these effects are

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abolished by denervation of the carotid sinus or section of the intercarotid nerves, because the afferent limb of the reflex is destroyed; 3.—that the reflex has both sympathetic and vagal efferent pathways, the heart rate being determined chiefly by vagal stimulation or inhibition, the vasomotor tone by sympathetic control. From what has been said earlier in the discussion, it is evident that this reflex is similar to those arising in the pressor-depressor fibers scattered throughout the vascular system. The concentration of these fibers in the carotid sinus forms presumably a delicate mechanism for the control of blood entering the brain.

Following this experimental work in animals, attention was focussed on the role of the carotid sinus in man. Several investigators have reported the effect on heart rate and blood pressure of stimulation of the carotid sinus.[4-5] In normal people, there is very little effect, perhaps a slight slowing of the pulse and fall in blood pressure. Subjects who have arterial hypertension or arteriosclerosis usually show a more marked response, sometimes a decided slowing of the heart and pronounced fall in blood pressure.

The only practical way to stimulate the carotid sinus in man is to press on it. The maximal effect of stimulation can be obtained only by pressure directly over the sinus. The head should be tilted slightly backward and to the side; in this position, the carotid sinus is usually located behind the angle of the jaw, at the level of the upper border of the thyroid cartilage.

I studied with Dr. Soma Weiss,[6] at the Thorndike Memorial Laboratory in Boston, a group of patients who complained of dizziness and fainting which could not be explained by any known pathology. We found that pressure on one or each of the carotid sinuses was followed regularly by dizziness, fainting and convulsive movements. All except three of these patients were above fifty-five years of age. They showed, as a rule, arteriosclerosis and evidences of coronary or other organic heart disease. We were able to divide these cases roughly into three groups, depending upon their responses to carotid sinus stimulation: 1.—those showing cardiac stand-still or sudden slowing of the heart, with or without marked fall in the arterial pressure; 2.—those showing marked fall in blood pressure without pronounced cardiac slowing; 3.—the three younger members of the group who showed extreme paling of the face followed by intense flushing, but without much slowing of the heart or fall in blood pressure.

In an attempt to explain the symptoms presented by these patients, we pursued a definite plan of study. Our findings proved that there existed, in each of these patients, a pathological hypersensitivity of the carotid sinus reflex. These studies also explained the mechanism of the carotid sinus reflex in man and shed some light upon the circulatory disorders giving rise to dizziness, fainting and convulsions. I shall give here merely a summary of these results. The circulatory measurements and case histories are recorded in our original paper.[6]

In most of these cases, pressure on the carotid sinus resulted in a marked slowing of the heart or fall in blood pressure, or both. In a few, the heart could be stopped altogether for an indefinite time, it seemed. We always released the pressure shortly after the patient fainted, so the longest cardiac stand-stills we have recorded were 15-17 seconds. Fainting and convulsions usually came on after an asystole of 7-10 seconds. Other cases who showed merely a slowing of the heart and not stand-still often suffered a systolic blood pressure fall of 50 or more millimeters of mercury; in such cases, the diastolic pressure was often too low to be recorded accurately.

The question was raised as to whether these symptoms of fainting and convulsions were due to mechanical occlusion of the artery, with resulting cerebral anemia. This was not the case, however, for occlusion of the artery below the sinus not only did not cause such changes, but in some instances resulted in a rise in blood pressure and speeding of the heart, presumably due to a decrease in the intrasinal pressure (cf. experimental work in animals).

It should be mentioned at this point that no harmful effects resulted from these procedures. The normal heart action and consciousness returned almost immediately after pressure was released from the sinus, and the patient was without discomfort or anxiety. Some of the experiments which I shall mention may seem hazardous, but they were always done with every precaution, and never caused any trouble.

Stimulation of the sinus induced striking changes in the electrocardiogram. These varied greatly in different patients, and even in the same patient at different times. The most striking change was the

long periods of cardiac stand-still, during which there was registered no movement of the heart. A feature of many of the tracings was evidence of block between the auricles and ventricles, varying in degree from a prolonged P-R interval to complete A-V block. In some cases the auricles continued to beat for several seconds after the sinus was stimulated, none of the P-waves being followed by QRST complexes; following this, there was evidence of ventricular activity, either as nodal rhythm, ventricular extrasystoles or bizarre complexes such as might be seen in ventricular fibrillation.

We were able to measure the cardiac out-put and circulation time in several of these patients by the dye injection method.[7] This was done with the patient in his normal resting state, and again while pressure was being made on the carotid sinus and the patient was on the verge of fainting. The second measurements always showed a pronounced slowing of the blood flow and decrease in the minute-volume out-put of the heart. Samples of blood were taken from the internal jugular vein while the patient was resting and again while pressure was being made over the carotid sinus. The second samples showed a significant decrease in oxygen and increase in carbon dioxide, indicating a cerebral anoxemia. These studies furnished a definite explanation for the development of fainting and convulsions.

In order to show this reflex to be an interplay of the vagal and sympathetic components of the autonomic nervous system, as had already been shown in animals, we administered drugs known to act rather specifically on these components. Adrenalin, in sufficient quantity to cause strong stimulation of the sympathetic system, abolished the reflex slowing of the heart and fall in blood pressure, as well as the symptoms of dizziness, fainting and convulsions. The depressor effect of stimulation of the carotid sinus had been over-come by artificial stimulation of the pressor nerves. Atropine, in doses sufficient to cause paralysis of the vagus, prevented the reflex slowing of the heart, for impulses travelling down the vagus were blocked. It did not entirely prevent the fall in blood pressure, for this fall was largely dependent upon a generalized vasodilatation, which in turn resulted from sympathetic inhibition.

We found it quite easy to infiltrate the wall of the carotid sinus with novocain by inserting a fine hypodermic needle into the tissues over the sinus until the wall of the artery could be felt to pulsate against the tip of the needle. This procedure regularly abolished the reflex, both the circulatory and clinical manifestations. In the same patients, we injected a similar amount of novocain into the carotid sheath lower down in the neck, to make sure that we were anesthetizing the carotid sinus and not the vagus nerve—this had no effect in blocking the reflex.

One of these patients had a small tumor mass over the right carotid sinus. When he turned his head in such a way as to press this mass into the sinus, there resulted slowing of the heart, fall in blood pressure, dizziness and fainting. This mass was removed under local anesthesia, and the carotid sinus stripped of its outer coat, thus denervating it. We followed him for some months after the operation. He had no more fainting spells, nor could they be brought about by pressure on this sinus.

DISCUSSION

In all these cases, at any time we were able to bring about dizziness and fainting, as well as the circulatory changes mentioned, simply by pressing on one of the carotid sinuses. These symptoms were identical with the spontaneous attacks described by the patients. The question naturally arises as to whether there was any causal relationship. In several of the patients (such as the one mentioned above), there were small tumor masses lying over the sinus which could, and did, cause pressure in that region. In another, the sinus was so sensitive that pressing his neck into a stiff collar brought on the circulatory and clinical manifestations cited. There were some, however, in whom it was inconceivable that sufficient pressure had been exerted against the neck to bring on their spontaneous attacks. The explanation for these probably lies in the fact that the carotid sinus represents only a part of the vast vaso-depressor system, any part of which may be extremely sensitive under pathological conditions. Further, it must be remembered that the sensitivity of reflexes may be decidedly greater under stress of excitement than in the quiet of the laboratory. It is conceivable that a sudden rise in blood pressure, acting on a highly sensitive vaso-depressor mechanism, would be over-compensated by a sudden slowing of the heart and fall in blood pressure. A striking case of this kind was reported

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by Roskam.[8] It is highly probable that any number of strong impulses striking the pathologically sensitive vaso-depressor center would precipitate a like reaction.

There were mentioned earlier in this paper three young patients who showed little change in heart rate or blood pressure upon stimulation of the carotid sinus, but who did show extreme pallor of the face and fainting. Obviously these cases are unlike the others studied, and another explanation for their symptoms must be invoked. Heymans[9] has shown a connection between stimulation of the carotid sinus and changes in the cerebral vessels in animals. Weiss, Robb and Ellis[10] have shown that there exists a close relationship between the responses of the facial and cerebral vessels in man. So one can assume that in this group of cases the fainting is produced by sudden changes in the cerebral vessels as a result of stimulation of the carotid sinus.

An important clinical application of this work has to do with the control of paroxysmal tachycardia. Our success in stopping these attacks by pressure on the neck has always been attributed to mechanical stimulation of the vagus. It now seems certain that such a result is due to stimulation of the carotid sinus, and that better results would be obtained by pressure directly over the sinus.

The Adams-Stokes syndrome has come to be considered the result of a structural block in the Bundle of His, for in most of the carefully investigated cases such changes have been demonstrated. The findings in this investigation show that the Adams-Stokes syndrome may also be of neurogenic origin, a theory advanced by Charcot[11] in 1872.

It was suggested that such a powerful reflex mechanism might play a causative role in the convulsions of epilepsy. However, in a large number of epileptics so tested, no convulsive attacks could be elicited.

SUMMARY

1. The general structure and function of the autonomic nervous system, as regards control of the circulation, is briefly reviewed.

2. The carotid sinus reflex is shown as a highly specialized part of the pressor-depressor system. Its response to stimulation in normal individuals is shown to be slight.

3. There is described a group of patients in whom stimulation of the carotid sinus caused pronounced circulatory changes, with resulting dizziness, fainting and convulsions. These clinical and circulatory changes are explained, in the light of experimental evidence, as being due to an abnormal sensitivity of the carotid sinus.

4. Certain circulatory disorders are discussed in relation to the carotid sinus.

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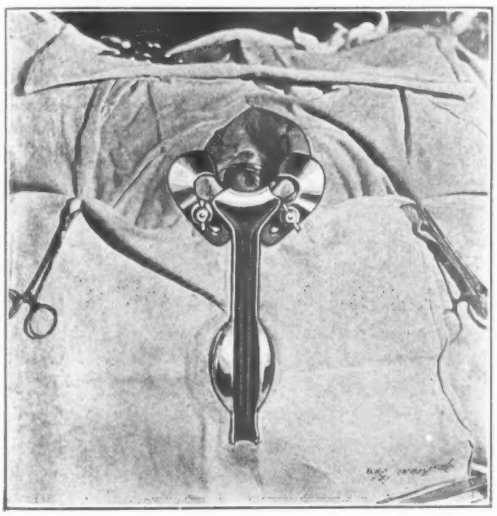
Medical Arts Building.

A SELF-RETAINING VAGINAL RETRACTOR.

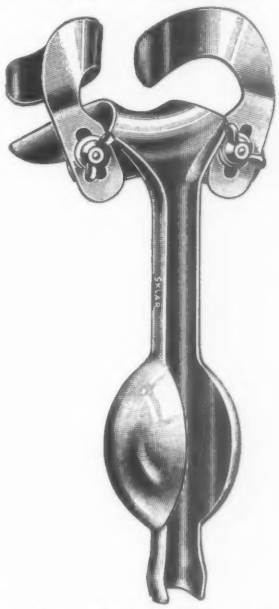
PROSSER HARRISON PICOT, M. D.,
Richmond, Va.

In plastic surgery upon the vaginal walls and cervix the end-results depend to a great degree upon adequate exposure. Even with two assistants at the command of the operator there is frequently the need of an additional pair of hands. This need invariably arises because much of the available assistance is utilized in providing exposure.



To overcome this difficulty the self-retaining vaginal retractor pictured here has been devised. The instrument is simply a weighted vaginal speculum of the Auvard type to which have been affixed two lateral retracting blades. These blades are independently adjustable in vertical and horizontal planes. They are removable. Because of the weight of the vaginal speculum, the instrument when in place is stable.

This retractor has been advantageously employed in operations upon the anterior vaginal wall, the cervix and in vaginal hysterectomies. Its use has been found to greatly facilitate operative procedure. The retractor has proven equally adaptable in cases



in which there is marked vaginal relaxation and in those in which the vagina is small and shallow.

It is of no value for work upon the posterior wall.

The instrument is manufactured by J. Sklar & Company, of Brooklyn, N. Y.

Professional Building.

A MODIFICATION OF THE BELLY TROCAR.

C. R. IRVING, M. D.,
Saltville, Va.

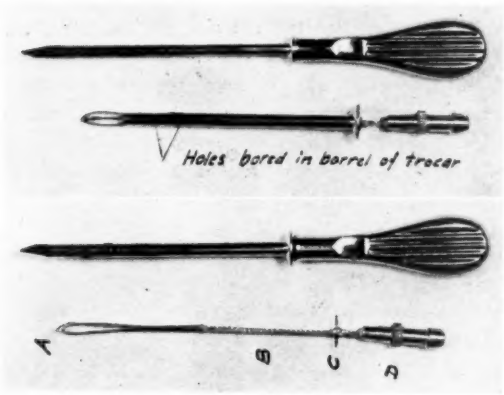
The lady gazed with righteous indignation at the eight pickaninnies gathered around her laundress.

"Cindy, who is the father of all these children"?

The ample colored woman straightened up from her washboard and favored her employer with a knowing, tolerant smile:

"Miss Sally, when 'de ole rabbit run th'u 'de brier patch we ain't axed what brier scratched her."

So, it is much the same with old lady "Necessity." How many children she has had no one knows, and all of them have been named "Invention." The sire of these has been ignored as fully as was the brier in the colored woman's brier patch.



The belly trocar herein described has been in use at the Mathieson Hospital for the past year and appears to work fairly well. The accompanying cuts are self-explanatory. The barrel is drilled through its diameter on the arc of the circle, the holes being "dodged" on the arc in order that the barrel may retain sufficient strength. The drainage obturator is simply two Beck-Schenck tonsil snare wires soldered at right angles to each other on the tip of the loop, A. These loops are then bent in until it will pass through the bore of the barrel. More soldering is done along the twisted portion of these wires at B, giving a shaft with moderate rigidity. A short cross-wire is attached at C which prevents the obturator from passing too deeply into the abdominal cavity. On the extreme distal end, D, is soldered an old stethoscope earpiece, or a reducer for a large syringe or what have you.

The method of employment is obvious.

Correspondence

Request for Report on Mental Patients.

TO THE EDITOR:

I notice that the VIRGINIA MEDICAL MONTHLY is urging a change in the commitment form for Virginia State Hospitals. I am indeed glad to know some steps are being taken. However, I am very much interested in having State Hospitals for the Insane give us a brief resumé and diagnosis and probable therapeutic measures to be used in cases sent in. We rural general practitioners are interested in mental cases, particularly the preventive side. However, we commit these cases and hear nothing about them afterwards.

Wouldn't such a report as all other hospitals send referring family physicians enable us to recognize and prevent early mental cases?

EARL J. HADEN, M. D.

Ore Bank, Va.
April 3, 1935.

Miscellaneous

Report of Survey of Obstetrical Facilities of Norfolk, Virginia.

The Norfolk County Medical Society some time ago appointed a committee of three to conduct a survey of the obstetrical facilities of Norfolk. Their report made on March the 4th of this year showed such a grasp of the question and brought out so much suggestive information, that the Society thought it should be put in more permanent form and made available for the information of others who might thereby be stimulated to an effort to better conditions generally. With this in view, the Society voted that the Secretary of the Society, Dr. Lockburn B. Scott, submit the following report for publication in the MONTHLY:

Maternal and Infant Mortality of the City of Norfolk

	1932	*1933*
TOTAL BIRTHS REGISTERED	2,342	2,217
White	1,583	1,428
Colored	759	789
Non-residents	81	111
Births for Norfolk proper	2,261	2,106
HOSPITAL DELIVERIES		
White	1,032	892
Colored	82	55
HOME DELIVERIES BY DOCTORS		
White	519	518
Colored	116	252
MIDWIFE DELIVERIES		
White	32	18
Colored	561	482

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MATERNAL DEATHS

In pregnancies before the fifth month	1932	1933
White	3	4
Colored	1	4
In pregnancies beyond the fourth month		
White	5	4
Colored	4	5
(Non-resident deaths, which were excluded)	6	1

MORTALITY RATES

	Per 10,000 Births
Total for Norfolk, 1932-33	69
Among whites	56
Among colored	92
State of Virginia, 1927-28	68
Country at large, ranges	65 to 70

Grade of prenatal care that was given the above 18 resident full-term patients, graded in accordance with the State Survey (*Virginia Medical Monthly*, July, 1933):

Grade of care	1	2	3	none
Number patients	3	4	0	11

Attended first, by (a) doctor, 9; (b) a clinic, 2; (c) by midwife, 7. One colored patient died of sepsis three weeks postpartum without being seen by a physician. Her certificate was signed by the coroner.

Hospitalization: 15 of the 18 patients went to hospital; with 4 it was *planned*, with 11 the admission was "emergency." Three colored women died at home.

Causes of death of these 18 cases (some had combinations): Sepsis, 6; toxaemia, 6; hemorrhage, 3; dystocia, 3.

INFANTS DYING UNDER 10 DAYS

	1932	1933
White	28	35
Colored	19	29
	47	64

STILL-BIRTHS

White	44	35
Colored	88	74
	132	109

Midwives registered: White, 4; colored, 31. No training nor supervision.

PRENATAL CLINICS

There were three prenatal clinics conducted. These were for white patients only.

PROTESTANT HOSPITAL CLINIC

	1932	1933
New patients annually	46	84
Total clinic visits	233	516
Average visits per patient	5	6.1
Delivered in hospital	46	84

KING'S DAUGHTERS, IN BRAMBLETON AND LAMBERTS POINT SECTIONS

	1932	1933
New Patients Annually, in both	167	175
Total clinic visits	731	836
Average visits per patient	4.4	4.8
Delivered in hospital	72	21
Total patients supervised in clinics	213	259

The following information was obtained by questionnaire:

What percentage of patients come before the fifth month? One estimated "25%"; the other said "very few—four or five a year."

Once started, did most patients come regularly? "Yes."

Were all patients given a thorough general examination? "Yes."

Were routine Wassermanns taken? "Yes"—except in the hospital clinic prior to 1933 this was delayed until patient was admitted for delivery. The exact percentage of positives was not obtainable but King's Daughters reported five positives in the two years.

Were prenatal leaflets of instruction given out? Not until the hospital started them, in 1933.

Were pelvic measurements regularly taken? External ones, yes; internal ones, irregularly. And the diagnosis of the pelvis was not always recorded.

Was position of the baby recorded, in the ninth month? The hospital reports "yes"; King's Daughters reports "not regularly."

Were patients urged to return for post-partum examination? Yes.

About what percentage would so return? One says "100%"; the other estimates "95%."

THE STERILE BUNDLE PREPARED BY KING'S DAUGHTERS

Contents

Douche pan	1 rubber sheet	Green soap
2 basins	2 paper pads	Vaseline
1 irrigating can	36 vulval pads	Gauze
2 sheets	1 pound cotton	Ether, ¼ pound
3 towels	Lysol	Chloroform, 2 ounces
1 pair leggings	Boric acid	Ergot, ½ ounce
2 bands	Olive oil	Cord dressing
1 doctor's gown		

Cost $6

	1932	1933
Number issued for private cases	77	55

PERTINENT FACTS NOTED FROM THE ABOVE

1. The highest mortality is among the colored population, where no prenatal care is given and where the deliveries are nearly all done by midwives in the home. But racial differences do not altogether answer the question, as white deaths exceeded the colored 16 to 14.

2. Of the 18 mothers, residents of Norfolk, who died in pregnancy beyond the fifth month, 11 had no prenatal care. Of these 11, 3 were white.

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3. Of these 18 who died, 7 were first attended by a midwife, who therefore had the chief responsibility. One woman died without any medical attendance.

4. Fifteen of the 18 were taken to hospital, but 11 of them went as *emergency* cases. This is a reflection on their prenatal diagnosis. (Five of them were taken to hospital after delivery.)

5. Reviewing the detailed information regarding those 18 deaths in late pregnancy, it would seem that, with good prenatal supervision and prenatal diagnosis, at least two-thirds would have been prevented. Our committee members, examining the data independently, judged as follows—13, 12 and 16 seem to have been preventable.

6. Though prenatal clinics are provided for the indigent, it is clear that a high percentage of those who died did not receive prenatal care. If this group may be used as an index, Norfolk continually has hundreds of pregnant women who are not receiving supervision.

7. Of the other 12 women who died in early pregnancy, 7 died of sepsis following miscarriage or abortion. This bears out our impression that the public is not awake to the danger of such terminations. People need warning and instruction.

8. Thirty-five midwives, without training, are being authorized to practice in Norfolk, and they are delivering 500 cases a year.

9. Comparatively few sterile bundles are being used in home deliveries, only about one in every ten cases attended by physicians.

10. If two-thirds of the maternal deaths were preventable, it is reasonable to assume that two-thirds of the infant deaths, the still-births, and the disabling injuries to the mothers, could have been prevented.

How Our Members Answered the Questionnaire

Number of replies received, 70. Membership, 170

1. "Do you urge prenatal care to pregnant women?" Except for two who did not answer it directly, all of the 70 said "Yes."

2. "Do you yourself attend obstetrical cases?" 39 replied "yes."

Those 39 answered as follows:

3. "To what degree do your patients co-operate for prenatal care?" 30 answered "well"; 9 said "medium"; none said "poorly."

4. "Do they seem to understand the importance of prenatal care?" 31 said "yes"; 3 said "No"; 5 said "generally."

5. "What is their main reason for neglecting it?" Many did not answer, but 4 said "futility"; 12 said "too bothersome"; and 4 gave "expense."

6. "Do you charge directly for each prenatal visit, or do you include these visits in a lump-fee for the case?" 36 include them in a lump fee.

7. "Do you use a pelvimeter on most of the prenatal cases you see?" All except three, answered "Yes."

8. "Do you routinely try to diagnose the position of the baby before labor starts?" All except one answered "yes."

9. "Is your record system satisfactory?" 29 said "yes"; 9 said "no."

10. "Do you consider it harmless to use pituitrin for the sole purpose of hastening delivery?" 19 said "yes"; 19 said "no." "Low forceps?" 16 said "yes"; 21 said "no."

11. "Do you have patients come to the office for vaginal examination before final discharge?" All except 2 answered "yes."

12. "Do you attend deliveries in the home?" 31 replied "yes."

This group of 31 gave the following replies:

13. "When you foresee complications, do your patients readily accept your advice about going to hospital for delivery?" 6 answered "no."

14. "When indigent patients have complications, do you have much trouble getting hospital care for them?" Only 4 said "yes."

15. "Are you satisfied with the equipment in your obstetrical bag?" 8 said "no."

16. "Do you routinely have the field clipped or shaved, scrubbed, and painted?" To this, 20 answered "yes"; 5 answered "no"—3 shave, 2 clip, 5 paint the field, and one indicated that he used scrubbing only.

17. "For home deliveries, do you consider a sterile bundle worth while?" 28 replied "yes"; 1 said "no."

18. "Are the available sterile bundles satisfactory to you?" 24 answered "yes"; 3 said "no"; one mentioned the expense, and 4 gave a list of what they thought to be a desirable and practical bundle.

19. "How many post-partum visits do you routinely make on normal cases in the home?" The replies average about ten; none stated less than five.

General Needs

1. The public still needs much education regarding the value of prenatal care. They are not yet sold on it. When a child is expected, some still seem unwilling to give prenatal care precedence over amusements and luxuries.

2. No one but physicians can convince people that prenatal care is worth while. The argument of others is lost, if the family doctor makes light of it, or fails to show interest.

3. More prenatal clinics, especially for colored people, appear to be needed. Prenatal clinics are for the supervision of patients during pregnancy, for the education of the public, and for the experience and training of such physicians as care to go there and assist; they are not intended for treatment nor for confinement care.

It is hoped that the plan now projected, for delivering normal indigent cases in the home by university students, will greatly extend the usefulness of the clinics and bring about the delivery of more of the abnormal cases in hospital. The plan should reduce the number of deliveries by midwives.

4. Better co-operation between doctors and prenatal clinics is needed. Doctors should take pains to send their indigent patients to clinic if they do not wish to spend time with them. On the other hand, the clinics

should refer back to the family physician for delivery any cases that are able to pay even a part fee. The family doctor should have at least the first chance at refusal.

5. If the midwives are to continue practice, a plan should be evolved for giving them training and supervision.

SPECIFIC NEEDS ON THE PART OF THE PHYSICIANS

1. Doctors should be prepared to give better prenatal care. They, themselves, should be better informed regarding its need and its advantage, and should take much more pains to teach it to patients.

2. It is of vital importance that, whenever a doctor accepts the care of an obstetrical patient, he have an established routine for her minimum care. The "Standards of Prenatal Care" recommended by the Committee representing our National Societies, we recommend for guidance. (See "Standards of Prenatal Care," *Amer. Jour. Ob. & G.*, Vol. XII, No. 3, September, 1926.)

3. A definite written diagnosis of the pelvis, and of fetal position, at the beginning of the ninth month, is an attainable goal for every practitioner. The general adoption of this practice, by our members, would quickly elevate the standard of obstetrics practiced in our community.

4. To this end, more consultations in the ninth month in doubtful cases would be both a credit and an advantage to all concerned.

5. Better record systems are needed for private work.

6. For home deliveries, better equipment is needed in obstetrical bags.

7. We need to agree on a sterile bundle of minimum contents and cost. Then, whenever we plan with a patient a home delivery, we should insist that bundle be procured and held in readiness.

8. Your committee believes that, except in unavoidable emergency, obstetrical operations should not be done in the home. The danger of infection is too great, and satisfactory repair is impossible. Whenever interference becomes necessary, the case should be transferred to hospital.

9. Through noting the large number of death certificates signed "cancer of the uterus" (28 per year), it is evident there is need for better post-partum follow-up. Through treatment of the cervicitis that so commonly follows child-birth, and proper periodic examinations, the incidence of cancer of the cervix could unquestionably be reduced.

In conclusion, your committee feels that, although much good work is being done, our standard of obstetrical work is no higher than the average for the country as a whole, and a great opportunity is presenting itself to the profession.

It is true that the public is responsible for many deficiencies, and financial conditions play a large part, but nevertheless people will always look to doctors for leadership in these matters and be guided by the standard the doctors set. The present period of re-adjustment is an opportune time for us to improve our equipment and establish a higher standard of work. Incidentally this would bring back some of our prestige.

Our standard of obstetric practice can, and should be, raised.

Respectfully submitted,

C. J. ANDREWS,
R. B. NICHOLLS,
P. E. THORNHILL, *Chairman.*

Analyses and Selections

Counter Prescribing.

The Virginia Pharmacist has reprinted the following by I. Trachtman, Ph. G., of Brooklyn, from the *I. P. A. Voice*:

We, pharmacists and physicians, lay our woes and our miseries at each others doors. We hurl accusations and antagonize each other, while those who are the *cause* of most of our troubles look gleefully on and rake in millions in profits that we create with our sweat and blood.

During a discussion recently, a physician remarked to me: "If half of the counter-prescribing druggists were put in jail the physicians would be able to make a living," to which I all but shouted in reply, "If only half of the physicians now prescribing or advertising proprietaries and patents to their patients went back to *real* prescription writing—back to the U. S. P. and N. F.—no pharmacist would want to or have to counter-prescribe, and the physician himself would not only make a better living; but he would also retain the respect of his patients." We look at one another's excited faces and suddenly realize—that we were really old friends, not deadly enemies.

I invited the doctor to my Rx room and there we had a lengthy heart to heart talk. I took down a file of recent Rxs and asked the doctor to look through them, and then—for the first time—my friend realized *why druggists counter-prescribe.* He was not only astonished, he was actually shocked at the revelation. And as he wondered, I spoke. I told him of a case, where I had convinced a woman who had a sore throat of the danger of self-medication. She had gone to a local throat man, paid him $5.00 for the visit and came back with a prescription calling for 3 ozs. Glycothymoline. She had read the name—priced the item in a cut rate store, but because of my good advice to her I was entitled to her patronage. She came back and un-

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der protest paid me 25c for the bottle that cost me 20c. I told him of a patient of his, for whom he had at one time prescribed *Empirin* tablets, when she was in bed with the grippe. The woman's son came into my store—bought a quarter's worth of Empirin tablets—showed me the Rx and asked if that was the right article. Since that day every neighbor in that apartment house has been buying and using Empirin for all their ills. The doctor had lost innumerable calls and I the prescriptions he might have written. Was it so hard to write out the three component ingredients of this proprietary? Could not the doctor have taken a minute longer to write a formula of his own?

Would it not be more ethical and safe for the patient *not* to know what she was getting in her prescription? I talked on and the doctor listened. I told him of a more recent case where a "specialist in diseases of women," handed a patient coming from my neighborhood a prescription for 100 tablets of Lutein suggesting to her that should her druggist ask for more than a specified price (for this excessively expense proprietary) that she try *Macy's*. (Macy made the sale.)

The doctor listened—and he looked with interest when I showed him shelf upon shelf full of expensive patent pills, tablets and powders which were called for once or twice by some physician and never repeated—now altogether unknown and forgotten and for which I had not even been able to collect the initial cost. I showed him hundreds of dollars worth of proprietary junk buried on my shelves and deteriorating through age—junk on which so-called "ethical—reputable houses" garnered in huge profits from the toil of the enslaved pharmacists through the folly of the unknowing and unsuspecting prescribing physician.

He now realized that not only had he been used as a tool to hurt and enslave the man he most depended on for cooperation in the treatment of his patients, but that gradually he had been ruining his own practice and destroying the confidence of his patients in his superior wisdom and knowledge in things medical. The question he now asked was: "what can we *both* do to combat this common enemy of ours? To reestablish our old confidence in each other and the confidence of the public in both of us?" And because we had aired our grievances and our faults, the remedy—we agreed—seemed surprisingly simple.

Doctor: Rediscover the U. S. P. and N. F. Make use of your knowledge when prescribing for your patients. Do not let the manufacturers and their "detail" specialists befuddle your brains with wonder tales of their ever "new" preparations which in most cases are nothing but old stuff under a new name or disguised in a new package.

Pharmacists: On you falls the bigger share of the burden of accomplishment. *Stop counter-prescribing, preach against self-medication, send advice-seekers to the physician* where they rightly belong and *visit the doctors* in your community yourself. Discuss with them all matters of interest to them and you.

Only by amicable cooperation between physician and pharmacist can the war be ended and peace and good will be once more restored.

Acute Subapical versus Insidious Apical Tuberculosis.

In earlier communications attention was called to subapical tuberculosis based on a study of 200 cases. Now that the series has been brought up to 1,000 cases the conclusion that progressive and destructive pulmonary tuberculosis usually begins suddenly with exudative subapical lesion seems justified. While later statistical material shows some change over that of the 200 original cases, the conclusions drawn from the original report are restated with additional support.

The older concept of pulmonary tuberculosis is that it usually begins quite incipiently with a small lesion in the apex of the lung and spreads caudalward, and that the symptoms and physical findings are so elusive as to escape all but the keenest diagnostician. The majority of patients present themselves first with far advanced disease; incipiency, as seen in the apical lesion is seldom found. The authors believe the acute subapical lesion is the more frequent as the truly incipient lesion and that such lesions often develop into far advanced disease before they are recognized for the reason that they increase rapidly in extent.

The study is not to be construed as an attempt to classify pulmonary tuberculosis into confusing sub-groups, but rather as a means of throwing light on the diagnosis, treatment and prognosis through a proper appreciation of the history of onset and course, and the location and nature of the disease.

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SUMMARY

1. Progressive and destructive pulmonary tuberculosis usually begins suddenly with exudative subapical lesions.

2. Lesions, far advanced, and excavations frequently develop within less than six months.

3. Processes leading to active progression and to excavation are most frequently associated with acute symptoms.

4. Physical signs and symptomatology (traditionally described as characteristic for "incipient tuberculosis") are misleading for the detection of truly incipient subapical acute processes.

(*Douglas, Nalbant and Pinner, Am. Rev. of Tuber., February, 1935.*)

Public Health Statistics

I. C. RIGGIN, M. D.

Health Commissioner of Virginia

The communicable disease report received at the office of Dr. G. F. McGinnes, State Epidemiologist, during March, 1935, showed the following cases compared with the same month in 1934:

	1935	*1934*
Typhoid and Paratyphoid Fever	9	14
Diphtheria	77	126
Scarlet Fever	271	208
Measles	5,444	7,221
Meningitis	21	24
Poliomyelitis	1	4
Rocky Mountain Spotted Fever	0	0
Typhus Fever	0	0
Undulant Fever	5	3
Tularaemia	0	1
Smallpox	1	1

TRICHINOSIS

Recently a physician in one of our Virginia cities contracted a severe case of trichinosis. Much difficulty was experienced in arriving at a diagonsis since neither he nor his attending physicians suspected the nature of the infection until late in the course of the disease. Subsequent to his recovery, physicians in this town have seen seven other cases of trichinosis whereas previously they had seen none. Since this is a common experience with physicians in both hospitals and private practice, it seems desirable to call their attention to the probable occurrence of undiagnosed cases in various part of the State.

It is of interest that recently a number of men have found larvae of *Trichinella (Trichina) spiralis* in the diaphragm of 5-25 per cent of postmortem examinations made in widely separated parts of the country, i. e., Boston, Massachusetts; Rochester, New York; Rochester, Minnesota; and St. Louis, Missouri. The findings were the result of routine hospital autopsies and examination of cadavers furnished the anatomy department of one medical school for student dissection. There was, therefore, no selection on the basis of histories—in fact where histories were available there was no suspicion of *Trichinella* infection. One might interpret these findings to mean that a considerable proportion of the population, at least in the areas studied, acquire sub-clinical cases of trichinosis at sometime during their lives. It seems altogether probable that many of the infections with *Trichinella spiralis* are so light as to elicit no symptoms or to cause only a passing illness so mild that a physician is not consulted. Undoubtedly many of the mild cases and some severe cases in Virginia are not diagnosed.

Since the various symptoms and diagnostic features are definitely related to the course of development of the worms in the body, it is desirable to present a brief resumé of the method of infection and life cycle of the worms. Most of the human infection is acquired from eating raw or insufficiently cooked pork (infections from bear meat have been reported) containing infective larvae encysted in the muscles.

NOTE:—Pigs are infected usually by eating rats or scraps from pigs containing the infective larvae in the muscle.

In the small intestine the encysted larvae are digested free of the muscles, grow to sexual maturity, start burrowing in the intestinal mucosa, and copulate in 3-5 days. After copulation the males pass out of the body with the feces and the females burrow for half or more of their length into the mucosa and submucosa of the intestine. About the fifth day after infection the females begin to discharge larvae through the vulva, which being near the anterior end of the body is burrowed in the tissues. The discharge of larvae usually continues up until the tenth or fifteenth day but sometimes even for several weeks after infection. Most of the larvae reach the lymphatics and are carried thus to the blood stream and by the blood to various striated muscles. They begin to appear in the muscles about the eighth

day after infection and active migration in the muscles usually continues up to three to five weeks after infection. The process of encapsulation starts early; most larvae are encapsulated by the sixth week.

Clinical Symptoms and Diagnosis.—The first symptoms, which are usually overlooked, occur while the worms are still in the small intestine. An acute diarrhea accompanied by abdominal discomfort, nausea, and vomiting may appear at any time up to the third or fourth day after infection. Often this attack is mild or of such short duration (10-24 hours) that no particular significance is attached to it. Usually in such cases the diagnosis is "food poisoning" or "intestinal flu," and treated accordingly. If the gastro-intestinal symptoms persist two or three days accompanied by fever a provisional diagnosis of typhoid is frequently made. An ocular oedema usually appears between the third and sixth day after infection. It may be noticeable while the patient is still suffering from the gastro-intestinal disturbance. In the absence of gastro-intestinal symptoms the ocular oedema may be the first physical sign of the infection and may remain for several days or even a week or longer.

In most cases a general eosinophilia is elicited; often it is evident by the third or fourth day but usually not well marked until after the fifth day when larvae are being discharged into the circulation. In most cases the eosinophilia will exceed 20 per cent by the sixth or eighth day and may eventually reach 50 per cent or more. The eosinophilia may remain for many months after all other evidence of the disease has disappeared. The prognosis is bad in those few cases in which *no eosinophilia* develops. Most of the cases with a marked eosinophilia recover.

As the larvae enter the striated muscle (5-10 days after infection) a tenderness, both upon movement and upon palpation, usually develops. In light infestations the tenderness may never develop or be so slight that no significance is attached to it. In more severe cases the muscle pains continue from five to eight weeks after infection, being most severe during the second and third weeks. Most notably effected are the mastication, tongue, shoulder, calf, diaphragm and intercostal muscles and in the most severe cases the cardiac muscles. In fatal cases death usually occurs between the third and sixth weeks. In such cases the patient runs an almost constant fever of 101-104° F., becomes delirious, comatose and dies from pulmonary and cardiac decompensation. This is brought about by direct destruction of cardiac muscle, damage to the respiratory muscles and perhaps by toxic products of the worms.

Usually when the patient recovers all symptoms disappear within six weeks. The larvae which reach the cardiac muscles re-enter the circulation or are killed and absorbed and apparently little permanent damage is done to the heart. The larvae in the skeletal muscles are encapsulated by host tissue and give no further trouble.

Of the laboratory aids to diagnosis the differential count is most commonly employed. The finding of an eosinophilia is *suggestive* of possible trichinosis even in the absence of clinical symptoms but *is not proof* of this infection since it occurs with other worm infections, asthma, et cetera. To confirm a diagnosis of trichinosis, a biopsy is usually done. A small piece of deltoid or gastro-nemus is removed near the tenderous insertion and examined, pressed or sectioned, for trichina larvae. This is effective after the third week. More recently serological and skin tests have been developed. The most practical at present is the skin test which McCoy has shown is about 80 per cent effective after the second week of infection. The trichina antigen gives a cross reaction with the whipworm, *Trichuris trichiura,* infections so that its value is doubtful where the whipworm incidence is high. A stool examination should always accompany a positive reaction to rule out possible whipworm infection. In positive cases the intradermal injection of 0.1 c.c. of 1:1000 or at most 1:500 dilution of trichina extract produces in twenty minutes a well marked blanched wheal surrounded by an erythema. Unfortunately the antigen is not yet commercially available.

No effective specific treatment is known. The patient should be made as comfortable as possible and treated symptomatically. A heavy infection confers almost complete immunity to reinfection for a year or more.

Prevention of infection is relatively simple. Since, with rare exceptions, human infection comes from pork or pork products a little precaution in the eating of these will prevent infection. Cooking such meat until all natural color is gone will kill any larvae present and make the meat perfectly safe to

eat. Hamburgers, which frequently contain pork scraps, are common sources of infection if inadequately cooked. No attempt is made in the country to inspect pork for *Trichinella* infection since any practical method of inspection known will miss light infections and thus give a false sense of security. Refrigeration of pork is required in government inspected abattoirs which kills *most* larvae. However, a great deal of pork is killed on the farm or in small uninspected abattoirs so the only guarantee against infection is to see that *all pork* eaten is *thoroughly cooked*.

Woman's Auxiliary to the Medical Society of Va.

President—MRS. JOSEPH BEAR, 3012 Monument Ave., Richmond.
President-Elect—MRS. FLETCHER J. WRIGHT, Petersburg.
Recording Secretary—MRS. JAMES B. STONE, 2042 Park Ave., Richmond.
Corresponding Secretary—MRS. AMBROSE MCGEE, 4107 Kensington Ave., Richmond.
Treasurer—MRS. REUBEN F. SIMMS, 2034 Park Ave., Richmond.

Attention!

AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

PLACE—TRAYMORE HOTEL, ATLANTIC CITY

TIME—JUNE 10-14, 1935

The thirteenth annual session of the Woman's Auxiliary to the American Medical Association will convene on Tuesday morning, June eleventh, at nine o'clock, at the Traymore Hotel, Atlantic City, New Jersey.

The second meeting of the session will be called to order Wednesday morning, June twelfth, at nine o'clock at the Traymore.

Mrs. Joseph Bear, Virginia State President, urges wives, widows, daughters, and sisters of all doctors to make an earnest effort to attend this convention.

The Canadian Medical Association will meet with the American physicians at this great resort. We all hope to make the Canadian women feel our real welcome.

Regardless of whether you are Auxiliary members, you are invited to the sessions which we hope will be most interesting this year.

Mrs. Robert W. Tomlinson, President of the Woman's Auxiliary to the American Medical Association, extends a hearty welcome and is most desirous of a large representation of delegates and visitors from the State of Virginia.

Alexandria Auxiliary.

The Alexandria Chapter of the Woman's Auxiliary was organized May 22, 1934, with four members present. The president, Mrs. Llewellyn Powell, now reports a membership of twenty and hopes to increase this number soon.

Some of the activities of this Auxiliary have been: Entertained members of State Auxiliary at annual meeting in October; in November, they contributed paint for the interior of the Day Nursery, and in December gave twenty books to start a library for this Nursery; in January, the Washington, D. C., Auxiliary entertained the Alexandria Auxiliary with a beautiful tea; and in March the Alexandria members hemmed fifty tea towels for the Alexandria Hospital. This Auxiliary has just adopted Constitution and By-Laws in conformity with those of the State Auxiliary.

They are to be congratulated upon the splendid progress made since last May.

The Auxiliary to the Lynchburg Academy of Medicine,

With Mrs. J. P. Clark as its president, is doing splendid work. A bridge party was recently held which netted $44.00.

Twenty dollars has been contributed to the milk fund in a local school, and food and shoes have also been supplied to needy school children.

Books in the Braille system are being purchased for the blind.

Plans are under way for a bridge party to be given early in May.

The secretary, Mrs. Ernest G. Scott, reports a membership of twenty-nine members.

The Auxiliary of the James City-New Kent Medical Society

Held its annual meeting at the home of Mrs. A. M. Sneed, in Toano, Va. Mrs. Tucker gave us a report of the Executive Board meeting held in Richmond, and urged us again to subscribe to *"Hygeia."* We decided the present New Kent, Toano and Matthew Whaley schools each with a year's subscription.

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New officers elected are as follows: President, Mrs. A. M. Sneed, Toano; vice-president, Mrs. T. B. Henderson, Williamsburg; secretary, Mrs. B. I. Bell, Williamsburg; and treasurer, Mrs. E. B. Kilby, Toano.

Our retiring president, Mrs. J. R. Tucker, has been untiring in her efforts to build up this Auxiliary which is only two years old.

(MRS. L. V.) MABEL HENDERSON,
Reporter.

The Auxiliary to the Warwick County Medical Society

Held its regular meeting at the Elizabeth Buxton Hospital on Wednesday, April 10th. This being the first meeting under our new president, much business was transacted and interest and enthusiasm was keen. The new committees were appointed, including the one which is to draw up our Constitution.

We were pleased and honored to have with us at our Annual Luncheon Meeting in March, Mrs. Joseph Bear, State President, Mrs. Ambrose McGee, State Corresponding Secretary, and Mrs. Reuben F. Simms, State Treasurer. Mrs. Bear gave a most inspiring talk on the importance and purpose of the Medical Auxiliary, and installed the new officers with helpful suggestions to each. Mrs. McGee and Mrs. Simms spoke to us briefly of the duties of their respective offices.

The officers installed were:

President, Mrs. Harold W. Potter; vice-presidents, Mrs. W. W. Falkener, and Mrs. W. S. Snead; recording secretary, Mrs. M. B. Beecroft; corresponding secretary and treasurer, Mrs. Thomas Hunnicutt, Jr. All officers are of Newport News.

CECIL G. HUNNICUTT (MRS. THOS., JR.)

Truth About Medicine

In addition to the articles previously mentioned, the following have been accepted by the Council on Pharmacy and Chemistry of the A. M. A.:

The Calco Chemical Co.
Aminoacetic Acid.
The Cutter Laboratory
Diphtheria Toxoid Alum Precipitated, Refined.
Lederle Laboratories, Inc.
Scarlet Fever Streptococcus Immunizing Toxin.
Scarlet Fever Streptococcus Toxin for the Dick Test.
Eli Lilly & Co.
Metycaine Tablets, ½ grain.
Ophthalmic Ointment Metycaine, 4 per cent.
Parke, Davis & Co.
Capsules Ortal Sodium, 5 grains (0.3 Gm.)
Meningococcus Antitoxin.
E. R. Squibb & Sons
Ipral-Amidopyrine Tablets, 4.33 grains.
Ipral Sodium
Ipral Sodium Tablets, 4 grains.

PROPAGANDA FOR REFORM

Adrenal Cortex Extract—After a consideration of the several names suggested for the extract containing the hormone of the adrenal cortex, and for the hormone itself, the Council decided that it would be advisable at this time to adopt a generally descriptive non-proprietary name for the more or less crude extracts and to defer until later the consideration of a name for the active isolated principle. The Council therefore adopted the title "Adrenal Cortex Extract" (with the Latin synonym "Extractum Adrenali Corticis") as its non-proprietary name for extractive preparations from the adrenal gland that contain the cortical hormone necessary for life. (Jour. A. M. A., January 12, 1935, p. 121.)

Bacteriophage Therapy.—Bacteriophage preparations have been available to the medical profession for about fifteen years. The discoveries of Twort and d'Herelle in 1915 and 1917, that bacteria can be dissolved and destroyed by an apparently self-propagating lytic principle were of great importance. Two views prevail as to the nature of the lytic principle. d'Herelle has held that it is a living parasite of bacteria, an ultramicroscopic filtrable virus, growing and multiplying in the process of changing or dissolving bacteria. Other investigators believe that the lytic principle is an inanimate substance of an enzyme-like character, which is reproduced during the course of bacterial autolysis. The difficulty in making crucial experimental tests of these hypotheses comes from the fact that the lytic principle cannot be propagated apart from the living bacteria on which it acts. The weight of opinion now seems to be preponderantly on the side of the argument that the lytic principle is inanimate. The complexity of the "bacteriophage" mixtures is one cause of the confused and contradictory publications. The usual material called bacteriophage contains (1) the lytic principle or bacteriophage, (2) products of the dissolved bacteria, (3) products of bacterial metabolism, and (4) constituents of the culture medium. In its clinical application, the possible effects of all these constituents must be taken into consideration. The action of the lytic principle on cultures on plates and in test tubes is undoubtedly far greater than its action on bacteria in the animal body. There is no evidence that lysis or killing of bacteria by bacteriophage occurs in vivo, except possibly where little exudate is present and where irrigation with large amounts of lytic filtrate can be used. As for its other possible effects on invading bacteria, the evidence is in-

complete. Almost every infectious condition from colitis to rhinitis has been treated with bacteriophage. Only in the treatment of local staphylococcic infections and perhaps in cystitis due to colon bacilli and staphylococci has even slightly convincing evidence been presented to show that therapy with lytic filtrates is effective. From these writings there emerge the possibilities that the lytic principle, functioning as an inert substance rather than a living agent, may under certain conditions in the body dissolve bacteria, induce bacterial variation and increase phagocytosis. The chief action of the lytic filtrates appear to be an immunizing action, so that bacteriophage therapy would appear to be essentially a form of vaccine therapy. [A series of articles containing an extended review on the subject appeared in The Journal A. M. A., December 8, 1934, p. 1769; December 15, 1934, p. 1847; December 22, 1934, p. 1934. The articles were written by Drs. M. D. Eaton, and S. Bayne-Jones, and published under the auspices of the Council on Pharmacy and Chemistry.] (Jour. A. M. A., December 8, 1934, p. 1780.)

Advertising Dealing with Treatment of Disease or the Nutrition of the Sick, or Recommending Any Special Type of Diet.—The Committee on Foods reports that advertising dealing with treatment of disease or the nutrition of the sick, or recommending any special type of diet should be directed exclusively to physicians and, when not a part of medical publications, should conspicuously bear the phrase "For physicians only" or its equivalent. (Jour. A. M. A., February 2, 1935, p. 398.)

Fortification of Foods Other Than Dietary Staples with Vitamin D.—The Committee on Foods reports that there is no convincing evidence from the standpoint of public health of a need for the fortification of foods with vitamin D other than such staple products as milk, cereals and bread, which form the basis of the customary diet of the public throughout the year. Examples of foods not warranting fortification with vitamin D are sausage and ice cream and such accessories as chewing gum. (Jour. A. M. A., February 16, 1935, p. 563.)

Book Announcements

The Spastic Child. A Record of Successfully Achieved Muscle Control in Little's Disease. By MARGUERITE K. FISCHEL. With an Introduction by George Gellhorn, M. D., St. Louis, Mo. St. Louis. The C. V. Mosby Company. 1934. Octavo of 97 pages. Illustrated. Cloth. Price, $1.50.

This is one of the very few medical books, written for laymen, that really is worth while.

The author's description of the symptoms and cause of the disease are excellent. Her methods of treatment, emphasizing the absolute necessity of daily personal care and supervision, are beyond reproach and strike the keynote in the basic principles of the logical treatment of these unfortunate children.

This book can be highly recommended to the parents of spastic children, both as a great mental stimulus when facing the care of one of them, and also as a remarkably clear and concise outline of the very necessary care at home.

J. BLAIR FITTS.

I Know Just the Thing for That. For Patients without Doctors and Doctors without Patience. By J. F. MONTAGUE, M. D., Medical Director, New York Intestinal Sanitarium; American Association for the Advancement of Sciences, etc. The John Day Company. New York. 1934. 12 mo. of 265-x pages. Cloth. Price, $2.00.

A book written for "patients without doctors," concerning a number of subjects of everyday occurrence. They range from laxatives to low blood pressure. Widely advertised and publicized diseases, symptoms and remedies, are discussed in a simple, common-sense manner, with the reputed admonition that the patient see a doctor rather than treat himself.

J. P. BAKER.

Methods of Treatment. By LOGAN CLENDENING, M. D., Clinical Professor of Medicine, Medical Department of the University of Kansas; Attending Physician, Kansas City General Hospital, etc. With Chapters on Special Subjects by H. C. Anderson, M. D.; Ursulla Brunner, R. N.; J. B. Cowherd, M. D.; Paul Gempel, M. D.; H. P. Kuhn, M. D.; Carl O. Rickter, M. G.; F. C. Neff, M. D.; E. H. Skinner, M. D.; E. R. DeWeese, M. D., and O. R. Withers, M. D. Fifth Edition. St. Louis. The C. V. Mosby Company. 1935. Octavo of 879 pages. Illustrated. Cloth. Price, $10.00.

In the first paragraph of the preface of the fifth edition the following statement is made: "this book was planned to furnish an outline of all the methods of treatment in internal medicine."

This edition is divided into two major sections: part 1, General Therapeutics—the methods used in treatment; and part 2, Special Therapeutics—the application of therapeutics to particular diseases. In all, there are twenty-five chapters covered in 859 pages. The reviewer has been over the book carefully for he has had in his own library the fourth edition for a period of several years. During this time the book has been in constant use and has proved itself of inestimable value.

There are certain minor details which the reviewer takes exception to such as the author's enthusiasm for sodium thiosulphate in the treatment of arsenic dermatitis and sodium formaldehyde sulphoxylate in the treatment of mercury poisoning. I doubt if either one of these remedies has a justified place in the therapeutic armamentarium of poisoning by these two substances. The author also shows

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considerable enthusiasm for the spirochetal origin of pulmonary abscess. I doubt if this conclusion is justified in the light of more recent bacteriological investigations.

There is no greater need in the general practice of medicine than that which exists for a book on therapeutics which is modern in viewpoint, sufficiently detailed in its recommendations, and accurate in its descriptions of various procedures. This volume is almost perfect in all of these requirements.

The chapter on "The Psychoneuroses," page 845, is a classic. The price of the book is justified by this chapter alone. It is one of the sanest discussions of the most difficult aspect of clinical medicine that the reviewer has ever had the opportunity of reading. This chapter should be read by all who are engaged in the practice of medicine including the internist, surgeon, and those practicing in special fields such as obstetrics and pediatrics. I might add, parenthetically, that it would be rather desirable if some of the psychiatrists would read the chapter on psychoneuroses. It would lessen their enthusiasm for psychoanalysis and tend them toward a more logical approach in the solution of "conflict" problems.

WM. B. PORTER.

Elementary Human Anatomy. Based on Laboratory Studies. By KATHARINE SIBLEY, Professor of Physical Education, School of Education, Syracuse University, Syracuse, New York. A. S. Barnes and Company, Incorporated. 1935. New York. Octavo of 380 pages with 213 illustrations. Cloth. Price, $4.50.

This book of 360 pages combines a textbook and laboratory guide designed especially for students of physical education. The foreword is written by Sir Wilfred Grenfell. Emphasis has naturally been laid upon skeleton, joints, and muscles, the accounts of which make up two-thirds of the book. The difficulties of presenting briefly but satisfactorily the essentials of a physiologic anatomy, so that the student's eventual knowledge is coupled with meaning and understanding and reality are admittedly great. Statements of fact must be condensed and generalized and from such the beginner is prone to gather surprising ideas. For example, the statement that the "Optic—or nerve of sight, arises from the occipital lobes of the brain and is distributed to the retina of the eyeball" will be very difficult and misleading as well. But such statements are not typical of the book.

The section on the muscles is very well done so that the mechanisms of movement are clearly presented. The illustrations are very well chosen from such standard works as Morris, Cunningham, Testut, Poirier-Charpy, Sobotta-McMurrich and Gerrish and should go far toward making the text intelligible.

The laboratory work calls for the study of the bones of human skeleton, of wet specimens of human dissections, of the human manakin, of fresh viscera from the abattoir, and especially of the movements and actions of muscles in the living human body. Some demonstration of the microscopic structure is also included for the main tissues.

H. L. OSTERUD.

Physiology In Modern Medicine. By J. J. R. MACLEOD, M. B., LL. D., D. Sc., F. R. C. P., F. R. S. Regius Professor of Physiology in the University of Aberdeen, Scotland; formerly Professor of Physiology in the University of Toronto, Canada, etc. Assisted in the Present Edition by Philip Bard.

The author, whose death recently occurred, has dropped from the title of this edition the word biochemistry and has retained in the text only those parts of biochemistry considered essential for the explanation of physiology. This is a commendable change, for the two subjects now include far too much for them to be enclosed in a single volume.

Macleod's book is a fair text of physiology, pointing out many clinical applications in an effort to impress the student that the subject is of vital importance to the practitioner of medicine. However, for so recently published a book, there are some serious omissions. The exact relationship of vitamin A and carotene is omitted, nothing is mentioned of flavines under vitamin B, and the important difference between irradiated ergosterol and natural vitamin D is not even suggested. The formula of these vitamins should likewise have been included.

Discussion of the pituitary hormones is scattered through the text and no recapitulation is made under the heading of the pituitary gland, which is unfavorable from the student's point of view. The discussion of the labyrinth in equilibrium reactions is very sketchy, nothing being said of the mechanism of stimulation of the sensory endings. In fact, the word otolith could be found but once and was not indexed.

Such omissions make the reviewer, as a teacher of physiology feel that he could not recommend this book for medical students.

ROLLAND J. MAIN, PH. D.

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Editorial

An Octocentennial.

Cultivated and religious people everywhere are this year celebrating the birthday of a Jewish physician, Moses Maimonides, the scion of a rich and distinguished family, who was born in Cordova, March 30, 1135. Caught in the dispersion of the Jews that followed in the wake of a great persecution in Spain about this time, his education interrupted, his fortune gone, Maimonides finally settled in Cairo. Here he soon became well known as a doctor, was appointed body physician to Saladin, and married the sister of Ibn al Mali, a royal secretary. With his personal fortune made, he turned all his influence to the betterment of his race to whom he became not only an incomparable healer but a great philosopher and an acknowledged religious leader. Although he died nearly eight centuries ago his memory is still green, freshened now by the worldwide celebration in his honor. To this author of a commentary on the *Mishnah* and of the *Mishneh Torah*, a master of Rabbinic literature, and one of the greatest Hebrew philosophers, Jews the world over have proudly paid tribute. To this author of the *Guide for the Perplexed*, a philosophical attempt to harmonize Biblical and Rabbinic teachings with Greek thought, especially that of Aristotle, philosophy today pays its acknowledgement.

Surely medicine also must offer her meed of praise to this profoundly versatile and gifted man. For first and foremost he was a physician. His *Tractatus de Regimen Sanitatis*, a treatise on personal hygiene, was prepared especially for the Sultan's own use. It contains an excellent regimen, diets, and the formula for a rhubarb and tamarind pill. During the Middle Ages another treatise of his on poisons was much in vogue. It was translated by Steinschneider into German as late as 1873.

Perhaps the clearest picture of Maimonides the physician is to be seen in one of his letters in which after describing the onerous duties exacted of him by the Sultan's household where he had to go every day and often remain the greater part of the day, he goes on to say, "I repair to Kahira (Cairo) early in the day, and even if nothing unusual happens I do not return to Misr (Fostat) until the afternoon. Then I am almost dying of hunger. I find the antechamber filled with people both Jews and Gentiles, nobles and common people, judges and bailiffs, friends and foes—a mixed multitude, who await the time of my return.

"I dismount from my animal, wash my hands, go forth to my patients and entreat them to bear with me while I partake of some slight refreshments, the only meal that I take in the twenty-four hours. Then I attend to my patients, write prescriptions and directions for their various ailments. Patients go in and out until night fall, and sometimes even, I solemnly assure you, until two

hours and more in the night. I converse and prescribe for them while lying down from sheer fatigue, and when night falls I am so exhausted can scarcely speak."

Let the "much driven" doctor of today hail this great Jewish physician who did not let the fact that he was court physician to Saladin interfere with the development of his own great soul by a life of service and self-sacrifice.

Just Another Fad.

One of the latest food fads among the hundreds that have been foisted upon the American public in the last few years is that sponsored by Benjamin G. Hauser. It can be found in a book called *Food, Science and Health* where the Hauser Elimination Feeding System is fully set forth. It abounds in such statements as: "There is no one living who does not accumulate a few pounds of poison each year regardless of how carefully he lives"; "Poisons have to be neutralized or they are absorbed"; "When the skin is dry or inactive because the pores are clogged with dirt, the poisons normally thrown out of the body through the skin have to be carried out by some other organ"; keep the skin clean "permitting the pores to breathe"; "Epsom salts has a pumping action and helps eliminate through the skin."

The two-day elimination scheme which is recommended once a month and is said to start you "on the right road to a year of health," consists of taking "a bit of vegetable salt water three times a day"; "Swiss Kriss at night"; "ten to twelve pieces of acid fruit a day"; "one quart of potassium broth a day, with raw salads and cooked vegetables noon and night"; "a fifteen-minute Epsom Salts bath every day." Drinking water must be distilled. On the last pages of the book one finds that the required "health foods" can be obtained from "health food stores or from the manufacturers, Modern Health Products Company, 1428 N. 24th St., Milwaukee, Wis."

A lot of printer's ink is thus wasted in telling a few plethoric, food indulgent, or overfed people to eat less and eliminate more. The whole business appears to be an elaborate and specious scheme to market two books abounding in half-baked ideas and false applications of the physiology of digestion and metabolism. Like Barnum's freaks, the scheme has found and will probably continue to find a gullible public who will not only try it but will cry its supposed virtues from the housetops.

Work for the Next Legislature.

It is apparent to any one who would take the trouble to look into the matter that much needs to be done before we in Virginia can be regarded as having modern institutions for the care of our 10,000 mental patients. Miss Dinwiddie pointed the way in her superb report which still lies tucked away in the archives of those who should, but apparently do not wish to, know how to conduct this great undertaking upon which the State spends annually more than $1,000,000. Dr. Beverley Tucker went further on the way when the other day in an address before the Virginia Conference of Social Work he advised the appointment of a special commission to study our whole system of the care of the insane in Virginia.

The matter is obviously a medical problem in which physicians will have to take the lead. The asylums must be taken out of politics and physicians must be on the board in sufficient numbers to have weight. A bill should be presented to the next legislature providing for at least one physician on each special board and making it mandatory for the Governor to make these appointments from nominations presented to him by the Medical Society of Virginia.

Progress in Radiology.

The VIRGINIA MEDICAL MONTHLY takes pleasure in publishing elsewhere in this issue the opinions of ten American roentgenologists concerning recent progress in radiology. It should assist the average doctor, who finds the ever-broadening field of medicine too wide for him to keep abreast of the advances in each specialty, to learn what they consider the three most significant achievements in their particular field during the last ten years. Considerable variation of opinion is evidenced in their expressed views, but it is perfectly clear that cholecystography, intravenous pyelography and supervoltage roentgen therapy deserve greatest consideration. As might be expected improvements in technique and apparatus are listed by some as deserving of record. The average doctor will be interested to learn that X-ray of the blood vessels and irradiation in carcinoma of the breast and uterus have been so improved as to be placed by others in the first rank of radiological advance.

Let's Have a Neuropsychiatric Association.

Some time ago the editor of *Mental Hygiene* wrote: "Mental hygiene is concerned with a broad program for human welfare. It includes within the scope of its activities the effective treatment and control of the insane and the mentally defective, at one extreme, and at the other, the prevention of mental disabilities and the enrichment of human life. It involves an interest in therapeutic procedures for those who are failing in the battle of life and an interest also in measures and methods that will forestall maladjustment. It is concerned not only with the mental health of the individual, but with social, educational, and health activities that affect the welfare of the entire population."

Dr. J. Allison Hodges, past president of the Medical Society of Virginia and a man who has given his life to neuropsychiatric practice has recently proposed the organization of a Virginia State Neuropsychiatric Association. He would set it up as a fitting memorial to the man who did most for mental hygiene in the State, Dr. William F. Drewry. Says Dr. Hodges: "I think our profession should awake to the necessity and importance of this work among our young people, and I believe that under the leadership of a young and enthusiastic man, who could surround himself with capable and influential associates, this branch of our educational work could be initiated. I can see that this work may so develop that our State Society might wish later to sponsor it, and enlarge its educational activities under the Department of Medical and Clinical Education so as to include High Schools, etc., or even having Honorary or Associate members, or members-at-large among the laity, thus utilizing and coordinating with our efforts, the Law and Ministry, and such other agencies as may or may not be deemed desirable by the Association after its organization.

"Mental hygiene has just come of age, and celebrated its twenty-fifth birthday on November 14, 1934, and it seems to me, that a public consciousness of the needs of mental health should be directed and developed under the guidance of physicians, and I believe that such a work would have been most pleasing to Dr. Drewry, especially as at this time, nothing appears likely to be done to perpetuate his initial work in this State."

It seems to the MONTHLY that such a neuropsychiatric association could do a great deal for the State, but it believes that it is extremely important to keep the organization of such a society strictly within the ranks of the medical profession. Medicine must hold the bridle rein in all matters relating to medicine. No one knows what the psychiatry of tomorrow will be, but we can be very certain that it will find its relations to medicine and biology even more intimate than they are today. It will probably know better how to measure human intelligence, how to evaluate the hereditary factor, and will possess greater respect for the interrelation of the soma, the psyche and the environment. All this new body of information can be used for the betterment of human life and such an association as Dr. Hodges proposes is the natural means not only of disseminating the knowledge but of assuring its practical application.

President's Message

To Members Medical Society of Virginia:

For your information and thoughtful consideration, I take this means of submitting to you the essential facts and certain comments upon a matter which should, and I believe will, interest every member of the Medical Society of Virginia. To give the matter a title, we might adopt the heading:

In Re: THE QUESTION OF THE RE-APPOINTMENT OF DR. JAMES K. HALL AS A MEMBER OF THE SPECIAL BOARD OF DIRECTORS OF THE CENTRAL STATE HOSPITAL AT PETERSBURG.

The gist of this matter is set forth in the exchange of letters between the Governor of Virginia and me as President of the Medical Society of Virginia. But, that every physician may understand the exact set-up of the control of our State hospitals for the insane, epileptics, and feeble-minded, it seems well to introduce this correspondence with a brief preface. Then follow a few comments. I will leave it to you to draw your own conclusions.

The "General Hospital Board"[1] is appointed by

[1]Officially, the General Board of Directors of State Hospitals and the Colony for Epileptics and Feebleminded.

the Governor. It is composed of fifteen men and women. Each of the four hospitals and the epileptic colony has three directors, its Special Board of Directors, and these five boards sitting as one body constitute the "General Board." The four State hospitals and the colony are as follows: the Eastern State Hospital at Williamsburg; the Central State Hospital (for colored people) at Petersburg; the Western State Hospital (including the DeJarnette State Sanatorium) at Staunton; the Southwestern State Hospital at Marion; and the Colony for Epileptics and Feeble-minded at Lynchburg.

Dr. James K. Hall, of Richmond, was until now a director of the Central State Hospital, exclusively for colored patients. His private sanatorium at Westbrook is for white patients only.

The law does not specify the Chairman, or executive officer of this Board. In fact, I am of the opinion that there is no State board permitted by legislation so much of its own discretion, without let or restraint, as the "State Hospital Board." At present, by election of the Board itself, the Chairman is Mr. Shirley Carter, a member of the Special Board of the Western State Hospital and the DeJarnette State Sanatorium.

The State hospitals and colony are supposed, under the law, to admit and to care only for the insane, the epileptic, the feeble-minded, the inebriate and the drug addict, or those suspected of having such diseases or conditions. If so, every one of their inmates is in some degree a *sick* individual, even if his sickness be entirely mental. This is an obvious conclusion, but one apt to be lost sight of at times. To this purpose only, i. e., the care of a certain class of the sick, is dedicated, at least in theory, these large and expensive physical plants, the army of attendants and other employees, these physicians and nurses, and annual appropriations of approximately $1,000,000.

The General Hospital Board, acting either as such or as five independent special boards, controls these several hospitals. The Governor has a degree of control over the Board, as he has the appointing power, without the necessity of nomination, or of recommendation, by any other body or person. The Board chooses the Superintendent of each hospital and the members of his staff; the Superintendent employs all employees.

Thus, a body of (until now) thirteen laymen and women, and two doctors, has control, more or less directly, of the physical well-being of about ten thousand helpless and pitiful sick people, wards of the State of Virginia.

To sketch in the immediate background of this exchange of letters: Bear in mind that the Medical Society of Virginia, through its House of Delegates, in session in the fall of 1933, condemned certain practices of the Western State Hospital, including especially the operations of the DeJarnette Sanatorium. It directed its proper committee to present this protest to the Governor, and to do all things necessary to secure the passage of corrective legislation. These orders were complied with.

In this connection, it is not generally known that the General Hospital Board itself was the first organization to acknowledge the right and the righteouness of the position of the Medical Society of Virginia in this matter. The circumstances were these: Dr. DeJarnette and others early in the session of the Legislature had secured the introduction of a bill to legalize the alleged unauthorized practices of the DeJarnette Sanatorium. This bill became known familiarly as the "DeJarnette Bill." But almost immediately the General Hospital Board, in a session attended by Dr. DeJarnette, disapproved the bill by a majority vote. Dr. DeJarnette stated that he would yield to this advice, and would withdraw the bill. We do not attempt to reconcile this avowal with his subsequent intense activity to further by all means possible the progress of the bill through the Legislature.

Technically, the Medical Society of Virginia lost its fight. Morally, it won. The proponents of that bill tacitly admitted that their former practices were unauthorized by urging the passage of an act to legalize some of the very things complained of. But to legalize a wrongful act does not make it right.

The only purpose in reviving this controversy is to ask the question whether it is not possible that all of the present situation may be but a repercussion of the unpleasantness of a year ago?

It may or may not be significant that until this legislative struggle of last year, Mr. James, Commissioner of Public Welfare, was Chairman of the General Hospital Board, though not a director of any hospital. In the midst of this controversy, he asked to be relieved of this chairmanship. Then, Mr. Shirley Carter, Director of the Special Board of the Western State Hospital and of the DeJar-

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nette Sanatorium Board was elected by the Board to be its Chairman.

In October, shortly after becoming President of the Medical Society of Virginia, I learned for the first time of a vacancy on the General Hospital Board, the first that had occurred since the eventful series of happenings just recorded.

This introduces the first exchange of letters.

A VACANCY ON THE GENERAL HOSPITAL BOARD

Abingdon, Va., October 19, 1934.

GOVERNOR GEORGE C. PEERY,
GOVERNOR'S MANSION,,
RICHMOND, VA.

MY DEAR GOVERNOR:

I have been informed, I think reliably, that Mr. John Q. Rhodes, Jr., has resigned his membership upon the Special Board of Directors of the Eastern State Hospital, at Williamsburg. If it be a fact that Mr. Rhodes has resigned, the appointment of his successor must be before you now.

Perhaps you may have heard that I recently became President of the Medical Society of Virginia, but it is hardly in an official capacity that I am writing of the interest of the doctors of the State in the selection of the member of the General Hospital Board. I cannot speak officially because the Medical Society has not authorized me to do so. *I do feel, however, that there should be more doctors on this Board. For the same reason that doctors constitute a majority of the State Board of Health, I think that physicians should have at least a larger representation upon the General Hospital Board.**

Would you think it improper of me to suggest to you, therefore, that you might get some good advice in conference with physicians about this appointment? Personally, I feel that if a doctor in the Norfolk area were appointed to fill Mr. Rhodes' vacancy, the General Hospital Board, the administration of the Eastern State Hospital, and, also, citizens of the city and vicinity of Norfolk, as well as the State generally, might be benefited.

I hope sincerely that you will take this letter in the spirit in which it is meant, namely, one of helpful suggestion. And with my kind regards, I am,

Respectfully yours,
(Signed) F. H. SMITH.

COMMONWEALTH OF VIRGINIA
GOVERNOR'S OFFICE
RICHMOND

October 23, 1934.

DR. F. H. SMITH,
ABINGDON, VA.

DEAR DR. SMITH:

I am in receipt of your letter of the 19th.

It is true that John Q. Rhodes, Jr., has resigned his membership of the Special Board of Directors of the Eastern State Hospital, at Williamsburg. I have not yet appointed a successor.

There are at present *two doctors* on the hospital board. I think there should be some doctors on the board. By reason of their medical knowledge and skill, they should be especially helpful on a board of this kind, *but I do not think that the board should be composed entirely of physicians.*

I doubt the advisability of making any fixed rule as to the representation. We are anxious to have good men who will see to it that the hospitals are properly managed.

I will be glad to talk over the suggestions you make *with some of my friends among the physicians.* I am always glad to have suggestions from you.

With personal regards, I am,

Yours very truly,
(Signed) GEO. C. PEERY,
Governor.

We lost again. Evidently the Governor's "friends among the physicians" did not think as I did, or, at least, did not carry much weight, for the Governor appointed a layman to succeed Mr. Rhodes, and, in fact, a second vacancy occurring, another layman—and no doctors.

URGES REAPPOINTMENT OF DR. HALL

Now, within the year, and at the first opportunity to "get even" with Dr. Hall, if, indeed, that was the desire of those whom he may have offended a year ago, I was informed of well authenticated, though unofficial, rumors that Dr. Hall was not to be re-appointed to the Board when his term expired March 1, 1935.

This introduces the second exchange of letters.

Abingdon, Va., February 23, 1935.

GOV. GEORGE C. PEERY,
RICHMOND, VA.

MY DEAR GOVERNOR:

Perhaps you will recall that last October I took up with you the advisability of having more physicians on the General Hospital Board, controlling the State Hospitals for the Insane and Epileptics. There are just two physicians on the Board of fifteen. The specific occasion of my writing was the vacancy which had occurred through the resignation of Mr. John Q. Rhodes, Jr. In this connection I offered my advice as to the suggestion of a physician to succeed Mr. Rhodes, I asking as President of the Medical Society of Virginia.

In spite of the fact that my suggestion was not followed and my offer was not accepted in that instance, I am confidently appealing for your favorable consideration of a present matter. I am told that the term of Dr. Jas. K. Hall, a member of the Special Board of the Central State Hospital, expires shortly, and that there is some question of his re-appointment.

I hope that this is a mistake. Should Dr. Hall not be re-appointed, it would be a serious loss to the State Hospital Service.

*All italics mine.

Because Dr. Hall had such a prominent part in the matter of the "DeJarnette Bill" when it was pending in the Assembly last year, it will be natural to think, should he not be re-appointed, that reprisal is being fixed upon him for his activity. The Medical Society of Virginia was also active in opposing the operation of the DeJarnette Sanatorium for the same reasons that Dr. Hall opposed it. Therefore, in the event that Dr. Hall is not re-appointed, the conclusion will be almost inescapable that professional criticism, however sincere, of the operation of the State Hospitals will result only in the tightening of lay control over these *medical institutions.*

I hope, therefore, that you will find it proper to reappoint Dr. Hall.

With sincere personal regards, I am,

Respectfully yours,

(Signed) F. H. SMITH,
President.

The report that Dr. Hall would not be reappointed to the General Hospital Board, or to the Board of Directors of the Central State Hospital, seems to have aroused more interest and more feeling than any other issue affecting physicians since it was last seriously proposed to put a license tax upon physicians. I am told that the Governor was deluged with letters, telegrams and personal calls all urging the re-appointment of Dr. Hall. These did not come entirely from Councilors nor the spokesmen of the component county societies. Our's was not a biased point of view, as is proved by the fact that the entire delegation of the City of Richmond in the Assembly visited the Governor to urge this appointment and the other two members of the Central Hospital's Board and several members of the General Board. Were further confirmation needed, note these quotations from editorials of the two Richmond papers:

NEWSPAPERS TAKE A HAND

THE RICHMOND NEWS LEADER

TUESDAY, FEBRUARY 26, 1935

Is It Reprisal?

. . . . . .

Many Richmond medical men affirm that the real reason for dropping Dr. Hall is that he was active in the fight against the DeJarnette Sanatorium at the Legislative session of 1934. Physicians regard the move against him as a definite reprisal, provoked directly and solely by his protest against State support of the adjunct to the Western State Hospital. . . .

. . . We cannot believe that Governor Peery will permit himself to be put in such an indefensible position.

. . . It will be a sorry return for invaluable service if reprisal is visited on Dr. Hall, because, in the exercise of his rights as a citizen, he protested to the General Assembly against the operation of the DeJarnette Sanatorium as a quasi-state institution. Is it conceivable that the exercise of that inherent right of protest is to be proclaimed to the State as a disqualification for public service? If it be so, free speech has ceased to have any meaning in Virginia. The next thing we know, some Legislator will be proscribed for speaking his mind.

Absurdity is the only word to describe the contention that Dr. Hall should not remain on the board of a state hospital for the insane because he is "in competition" with institutions of that type. Central State, as every one knows, always has been a hospital for Negroes: Dr. Hall, needless to say, has no Negro patients at Westbrook. . . . And even if Dr. Hall were operating a private hospital in direct and avowed competition to Central State, what of it? Any executive who is not on the verge of idiocy would always be glad to get the honest judgment of an able competitor on his affairs. And, still again, if it be contended that Dr. Hall, as a member of the special board of the Central, is antagonistic to some of the other gentlemen who make up the general hospital board, is it not a recommendation rather than otherwise? Does Virginia want a board of "Yes" men who will always dumbly follow the lead of some dominating state official?

. . . What man whose counsel is worth anything will care to accept appointment on a state board if it is understood that along with his commission there is sent him a gag which he must submissively put—and keep—on his mouth?

RICHMOND TIMES-DISPATCH

MARCH 2, 1935

Keep Dr. Hall.

. . . . . .

The Governor's attitude toward the distinguished Richmond psychiatrist is inexplicable. So far as this newspaper is informed, no charge has been brought against either his character or his ability. On the contrary, Dr. Hugh C. Henry, superintendent of the Central State Hospital, is anxious that he be reappointed and has so told the Governor. A majority of Richmond physicians wish him to remain in this service. The Board of the Academy of Medicine has endorsed him. That is on the professional side. On the political side, Dr. Hall has the wholehearted backing of the entire Assembly delegation from the Richmond area.

. . . . . .

It may not be fair to say that the Governor is seeking to penalize Dr. Hall for his activity in the movement to abolish the DeJarnette Sanatorium, operated in connection with the Western State Hospital, at Staunton. That, however, is certain to be one of the deductions of the public if the physician does not remain on the board. In not reappointing him, the Governor would be making himself subject to the accusation that he had practiced political reprisal at the sacrifice of the welfare of an important institution for the mentally sick.

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FINAL CORRESPONDENCE

To all of this pleading, the Governor replied as follows:

COMMONWEALTH OF VIRGINIA
GOVERNOR'S OFFICE
RICHMOND

DR. F. H. SMITH, March 3, 1935.
PRES. MEDICAL SOCIETY OF VIRGINIA,
ABINGDON, VA.

DEAR DR. SMITH:

I am in receipt of your letter of the 23rd ultimo.

I note what you have to say about the medical profession being represented on the General Hospital Board. I think this is a sound policy, and that the board should have some business men and some physicians.

In regard to the reappointment of Dr. Hall, *there is no question of his ability and professional qualifications,* but this is the situation: The Legislature has given its approval to the operation of the DeJarnette Sanatorium by the State. This policy will be continued until changed by the legislature. *There is a probability that a conflict may arise as between the private sanatoria and the State sanatorium. In this event,* I think it would be better to have some physician who is entirely free from any personal interest.* The General Hospital Board determines matters of policy, elects the superintendents and makes recommendations as to their salaries. *Personal and political considerations do not enter into the matter in any way. The question is one involving a general policy.*

I hope to dispose of the matter in the near future.

Yours very truly,
(Signed) GEO. C. PEERY, *Governor.*

This communication was answered as follows:

Abingdon, Va., March 7, 1935.

GOVERNOR GEORGE C. PEERY,
RICHMOND, VA.

DEAR GOVERNOR PEERY:

I acknowledge with appreciation your letter of the 6th instant.

Please know that I have the deepest respect for your office, and, if you will permit me to say so, the most kindly regards for yourself personally. Therefore, it is most unpleasant to have to disagree with you in regard to the appropriateness of re-appointing Dr. Hall. It is only because I regard the failure to reappoint Dr. Hall as *a grace reflection,* not only upon him, *but upon the organization which I represent,* that I pursue the matter further.

I understand your letter to say that there are no charges of a personal or official character against Dr. Hall. We are highly gratified to know that your only objection is "a probability that a conflict may arise" because the Legislature has approved the operation of the DeJarnette Sanatorium, while Dr. Hall operates a private sanatorium.

This "probability," then, would be applicable in the case of Dr. King when he comes up for re-appointment, and would prevent the appointment of any psychiatrist in the State. So far as I can recall, every psychiatrist otherwise eligible for appointment on this Board is connected with a private sanatorium. The Board, then, would be deprived of the advice and counsel of all experienced psychiatrists and sanatorium administrators (except the superintendents of the several State institutions), because there might be some clash of interests.

I respectfully disagree with this line of reasoning. These psychiatrists should furnish a unique service to the State. I think it a splendid piece of good fortune that Virginia is able to avail herself of the services of men whose private experiences can be secured for and directed to the administration of similar State institutions. The very fact that there may be some competition as between the two, it seems to me, could result only in improved administration and operation of both classes of sanatoria, the private and the State. And that there are disagreements and differences of points of view between members of the Board can result only in assurance that the administration of these public institutions is all that it should be.

The Medical Society of Virginia is interested, of course, that Dr. Hall not be treated unfairly. But its larger interest is not personal. We, too, feel that there is "a general policy" to defend. It was the Society itself that protested against what we thought was unauthorized practice of the DeJarnette Sanatorium. That we were right is confirmed by the fact that Dr. DeJarnette and two members of his Special Board asked the Legislature for authority to do many of the things that we pointed out were unauthorized. Before the bill was finally passed, they saw fit to amend and omit several of the items they had originally sought. For this bit of public service we think the organization should be thanked, not condemned.

Yet following closely on the heels of that argument, and *at the first opportunity for reprisal,* it is intimated that Dr. Hall will not be re-appointed, for the reasons mentioned above.

Whether we are right or not, it is impossible for us to escape the conclusion that *Dr. Hall is to be punished for criticizing practices at the DeJarnette Sanatorium, practices which were tacitly admitted indefensible in seeking legislative enactment to make them lawful.*

The State Society is interested because if this action and this suspicion of our motive is to be the *general policy* in return for suggestions, even criticism, however sincere, in matters as closely connected with medicine as the State Hospitals for the Insane and Epileptics, we want our protest to be a matter of record.

Therefore, until we see the statement published officially that Dr. Hall will not be re-appointed, *we respectfully submit the nomination of Dr. Hall* to succeed himself upon this Board.

Believe me sincerely and cordially, as well as

Respectfully yours,
(Signed) F. H. SMITH,
President.

*I wonder whether the Governor has ever thought of this probability in connection with Dr. Woodson serving as Superintendent of a State Sanatorium and also as a State Senator?

EPISODE DISCUSSED

The above letter has never been acknowledged, and ends the correspondence to date. At no time has the Governor directly asked that the Medical Society of Virginia make other nominations. This in itself would preclude such a move either by the President or the Council of the State Society. In the other event, it would have been inconsistent, to say the least, to have nominated any one than Dr. Hall, even had we been requested to do so.

The fact is the newspapers of April 3rd were the first intimation that our plea had been ignored, that Dr. Hall had not been re-appointed. Though it may seem superfluous to say so, I take pains to say that we have no objection to Dr. Frank Pratt, the Governor's appointee to the Board of the Central State Hospital. His acceptability, however, is not the point at issue. We appreciate the appointment of Dr. O. T. Amory to the Board of the Eastern State Hospital to replace Mrs. Covington. We do not know whether or not Mrs. Covington declined re-appointment. At least, we are glad to have three physicians instead of two on this Board of fifteen. I wonder, however, whether this slight yielding on the part of the Governor to our point of last fall really means anything, inasmuch as the Governor has saved his point that his "general policy" is to get rid of all except those "entirely free from any personal interest?" Should this "policy" be adhered to, and followed by the next Governor, Dr. Jas. C. King, now a Director of the Western State Hospital and DeJarnette Sanatorium is the next to go.

Once more, we have lost our immediate objective. Whether we have lost in the larger sense remains to be seen. The issue rests, in my opinion, solely upon the reaction of the medical men of Virginia. Do you or do you not choose to meet your responsibility toward patients in our State institutions, or, for that matter, toward all public affairs in which physicians possess a dominant interest and should exercise a dominant advisory control?

Speaking frankly, the broader implication for Virginia physicians in the "Hall case" is that it brings us to face the fact that organized medicine in Virginia is today at the cross roads. If one of our number, a member of an official board, against whom no charges of a personal or professional nature can be brought, is to be penalized for expressing his opinion in opposition to others of the board, and if the Statewide protest of physicians, as well as of citizens personally disinterested, is to be ignored, we must choose between organizing ourselves into a compact unit whose advice will be heard and heeded, or retiring completely from the field of public affairs, thus permitting ourselves to be used, or abused, by any machine which has the mind to so treat us. I hereby put this question directly to the members of the Medical Society of Virginia.

While this question is pending, it is comfortable to be told that politics does not enter into the Hall matter. By inference, then, the activities of this Board and the administration of its trust are not influenced by political considerations or personal bias. Think of the possible consequences *if politics were mixed* with this humanitarian medical service to these unfortunates! Suppose the Governor, the Board, the Superintendents, their staffs, all employees *were* dominated by political considerations and expediences, animated by political rewards and reprisals, rather than consecrated to the service of distressed humanity!

Incidentally, what a flood of light the potentialities of such a set-up as I have imagined throws upon the much debated question of "State Medicine!" Suppose the State of Virginia *should* set up such a system for the service of all medicine, to all the people, sane and insane, except the rich. Suppose this system *should* be dominated by politics; the Governor at the head of State medical service, as he would have the unrestricted appointing power; a board of control, even though 20 per cent may be physicians, or none at all as the Governor willed; the board having power to "hire and to fire" any and all of the medical personnel, or, even, a member of the board itself through the Governor!

It would be an anomalous situation, indeed, to be licensed by one authority of the State to practice medicine, and to be restrained from exercising that privilege by another authority of the same State because one was not in good repute politically. The physician would live under the constant threat of being removed or replaced, should he become critical of the sort of medical service being dispensed under his own observation. Or, he might be eliminated should he operate any private business which *might* come into competition with a State enterprise. For, by then, the well-established principle of gov-

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ernment, that the State should not enter into destructive competition with legitimate private enterprise, shall have been reversed. In fact, the citizen-physician must not operate a private sanatorium because he *might* compete with a State sanatorium! This must be correct in law, since a justice of the Supreme Court thought it not improper to appear before a Senate Committee in advocacy of a bill, which, if it became an act of Assembly, might at any time come before him judicially for interpretation and decision.

But the fate of Virginia physicians, even though they be two thousand of its citizens, generally in good repute, is not the supreme consideration. What of the physical welfare of two million Virginians under such a system as we have imagined!

I shall leave this question there. Possibly the General Hospital Board is demonstrating by their administration of these State hospitals how efficient medical care for all the people would be under State control. At least, the vista is too extensive to portray here. Suffice it to say that the potentialities suggested by the affair of Dr. Hall are, in my opinion, more important and far-reach in their implications than any that have confronted the thinking people of Virginia, lay and professional, since the World War.

F. H. SMITH,
President.

April 5, 1935.

Department of Clinical and Medical Education of the Medical Society of Virginia

The South Boston Postgraduate Course in Pediatrics,

Sponsored by the Department and announced in the April issue, was completed on April 3rd. In addition to the physicians previously announced in attendance upon the course should be added the names of Drs. R. H. Fuller and W. C. Brann. Visitors during the course included Drs. P. W. Miles, of Danville and H. C. Chalmers, of Phoenix. The public health nurses of Halifax County, upon the invitation of the physicians, attended six of the clinics.

The statistics for the course as a whole are as follows:

Enrolled: 12
Visitors: 4
Average attendance at meetings: 10.9
Per cent of attendance for those enrolled: 90.

Both the clinician, Dr. Samuel F. Ravenel, and the physicians attending the clinics speak most enthusiastically of achievements.

Program for Postgraduate Clinic at the University of Virginia.

Supplementing the postgraduate clinic to be held at the Medical College of Virginia, Tuesday, April 30th, as announced in the previous issue of the MONTHLY, the Department of Medicine of the University of Virginia will hold its fifteenth postgraduate clinic at the University of Virginia hospital on Friday, May 10, 1935. This program is conducted in cooperation with the Department of Clinical and Medical Education. The program follows:

FRIDAY, MAY 10, 1935

9:00- 9:30 A. M.—Registration, University of Virginia Hospital.

Morning Sessions

9:30-10:00—Diagnosis and Treatment of the Commoner Affections of the Eye. Dr. H. S. Hedges,
10:00-10:10—Discussion.
10:10-10:40—Bronchiectasis. Dr. E. C. Drash.
10:40-10:50—Discussion.
10:50-11:20—Some Aspects of Renal Infection. Dr. J. H. Neff.
11:20-11:30—Discussion.
11:30-12:00—The Early Orthopedic Treatmeent of Poliomyelitis. Dr. Robert Funsten.
12:00-12:10—Discussion.
12:10- 1:30—Lunch.

Afternoon Sessions

1:30- 3:30—Ward Rounds. (Further particulars will be announced at the time of the clinic.)
3:40- 4:30—Meningitis. Dr. W. W. Waddell.
4:30- 4:40—Discussion.
4:40 —Round Table. (Further particulars will be announced at the time of the clinic.)

The physicians of the State are cordially invited

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to attend this clinic and participate in the discussions. No fee will be charged for attendance. In order to make more satisfactory arrangements, those who expect to attend are requested to so notify Dr. L. T. Royster, Chairman, University of Virginia Hospital, University, Virginia.

GEOGRE B. ZEHMER,
Executive Secretary.

Proceedings of Societies

The Northampton County Medical Society

Met April 3rd, at "The Rafters" in Eastville, Va. Visitors from Salisbury, Md., were Drs. Dick, Nock, Fisher, Williams, and Kuhlman. A visitor from the Accomac County Society was Dr. Rooker White, of Keller, Va.

Dr. Alan Lloyd, of Norfolk, spoke on the "Care and Treatment of Painful Feet."

Dr. A. B. McCreary, recently of Memphis, Tenn., and now Director of the Northampton County Health Unit, spoke of his plans and policies in his new capacity. A committee from the Society, consisting of Dr. G. Fred Floyd, Dr. G. W. Holland, Dr. J. Gates Goode, and Dr. J. R. Hamilton, was appointed to act as an advisory committee to work with Dr. McCreary.

The Southwestern Virginia Medical Society

Had a most successful meeting in Christiansburg on March 22nd, under the presidency of Dr. Beverley F. Eckles, of Galax. Three new members were elected: Dr. David H. Andrew, Wytheville, as an active member, and Drs. W. K. Vance, Jr., Bristol, Tenn., and Robert O. Glenn, Mountain City, Tenn., as associate members. It was decided to hold the next meeting in Roanoke in the early Fall. Dr. H. W. Bachman, Bristol, Va., is secretary-treasurer of this Society.

The Lunenburg Medical Society,

A component part of Postgraduate Medical Society, met at Victoria in conjunction with the Department of Clinical Education of the Medical Society of Virginia, on the afternoon of Tuesday, April 9th. The meeting was presided over by the president, Dr. H. E. Whaley, of Victoria.

At the beginning of the meeting there were two case reports, one by Dr. R. A. Moore, of Farmville, and the other by Dr. Wright Clarkson, of Petersburg.

The invited guest, Dr. W. R. Jordan, of Richmond, gave a most excellent talk on Diabetes. He covered the entire field in a practical and interesting way and his presentation was greatly appreciated and much discussed by the members.

Dr. H. B. Showalter, of Kenbridge, presented a very excellent journal review on Specific Urethritis and following this, Dr. Robert Whitehead, of Victoria, presented a journal review on Prostatic Hypertrophy. Both of these brought forth considerable discussion.

Dr. H. B. Showalter was elected delegate and Dr. Robert Whitehead alternate to represent Lunenburg County in the House of Delegates of the Medical Society of Virginia at the next meeting.

Drs. E. M. Parker, of Emporia, and Bernard Barrow, of Blackstone, were elected honorary members, and Dr. J. C. White, of Blackstone, was elected to membership.

Following the meeting a delightful dinner was served in the hotel dining room.

The Greenesville County Medical Society,

Meeting as a section of the Postgraduate Medical Society, presented a most excellent program consisting of a symposium on Pneumonia, on the evening of April 5th, at Virginia Hotel in Emporia.

The meeting was called to order by the President, Dr. C. E. Martin, with Dr. B. J. Atkinson officiating as secretary.

The first paper on the program was "Pneumonia" by Dr. J. B. Kiser. Following this, Dr. L. P. Jones gave a paper on "The Differential Diagnosis, Prognosis and Treatment of Pneumonia." The third paper on the program was "The Cause of Death in Pneumonia" by Dr. T. H. Anderson and following this Dr. Wright Clarkson showed numerous roentgenograms demonstrating various types of chest pathology.

Every physician present entered into the discussion of the symposium which lasted for nearly four

hours and which proved to be the most enthusiastic medical meeting held in Emporia in recent years.

Before the meeting the physicians attended a brunswick stew at the Greenesville County Hunt Club and after the meeting refreshments were served from the hotel dining room.

The Bedford County Medical Society

Held its regular quarterly meeting on the evening of April 15th. There was a good attendance and an unusual amount of interest. Papers were presented on the Function and Hormones of the several endocrine glands by Drs. W. O. McCabe, T. P. Weat and C. H. Bondurant. Dr. Bondurant is president and Dr. J. A. Rucker, secretary.

The next meeting will be in July.

The Lynchburg Academy of Medicine

Met in regular meeting April 1st, the subject for discussion being "Influenza." Dr. S. Grady Miller, presented a paper on "Diagnosis and Treatment," and Dr. D. P. Scott, on "Complications." The attendance was large and discussions free with all the divergence of opinion which the subject justified.

At the same meeting Dr. F. O. Plunkett and Dr. D. P. Scott, were elected delegates to the State Meeting, and Drs. E. G. Scott and John Hundley, Jr., were selected alternates. All are of Lynchburg.

Officers of this Society are Dr. W. C. Adkerson, president, and Dr. John Hundley, Jr., secretary.

The Roanoke Academy of Medicine

Held its third hospital meeting at the Shenandoah Hospital, on March 25th. The following scientific program was presented:

Bilateral Tuberculosis of Kidney—Drs. S. B. Cary and I. E. Huff.

Hydronephrosis in Child—Dr. L. G. Richards.

Dehydration—Dr. J. D. Willis.

Skin Graft—Dr. I. H. Hurt.

Nephrectomy (Motion Pictures)—Dr. T. J. Hughes.

Following this program refreshments were served.

On Monday evening, April 1st, the Academy held a dinner meeting at the Elk's Club. Dr. J. Lawson Cabaniss, of Roanoke, was elected to membership in the Academy.

The following scientific program was presented:

The Diagnosis and Treatment of Bronchiectasis—Dr. A. C. Christie, Washington, D. C.

Practical Applications in Drug Therapy and Surgical Indications Resulting from Recent Accurate Diagnostic Procedures in the Upper Urinary Tract—Dr. William P. Herbst, Washington, D. C.

Following this program, Dr. Christie discussed Hospital Insurance.

Dr. W. P. Jackson and Dr. Frank Helvestine, Jr., are president and secretary, respectively, of the Academy.

The Virginia Peninsula Academy of Medicine.

At its meeting on March 18th, at Hampton, Dr. C. C. Carpenter, of Wake Forest Medical School, spoke on "What We Know About Cancer," and Dr. Walter B. Martin, Norfolk, on "Management of the Heart Case."

This organization has about eighty-five members and has a monthly dinner meeting.

Dr. Edward L. Alexander, Newport News, is president, and Dr. F. S. Bacon, secretary.

News Notes

Our State Meeting.

Though dates for the annual meeting of the Medical Society of Virginia in Norfolk are over five months off—October 15th-17th, the local committee, under the chairmanship of Dr. W. L. Harris, is already actively at work for the success of the meeting. The Monticello Hotel has been selected as headquarters and as the place for all meetings. Dr. Harris announces that in the way of entertainment, the Norfolk County Medical Society is planning an old fashioned pre-prohibition oyster roast on Lynnhaven Bay.

The local auxiliary is also planning elaborate entertainment for the visiting ladies.

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State-Wide Safety Conference.

Realizing the enormous toll we are paying for preventable accidents of all types, in the homes, schools, industry, on the streets and highways, Governor Peery has called a State-Wide Safety Conference to be held at the Jefferson Hotel, Richmond, on May 15th and 16th, to consider all phases of accident reduction. There will be a general meeting on Wednesday morning the 15th at which time there will be given a general outline of the purpose of the Conference after which the Conference will be broken up into group meetings for the remainder of the 15th and the morning of the 16th, to study and discuss the fundamentals of accident reduction as pertaining to their groups. On the evening of the 15th, there will be a banquet at the Jefferson Hotel at which time prominent speakers will address the Conference.

There are one hundred State-wide organizations sponsoring this Conference, among them being the Medical Society of Virginia and the Virginia Hospital Association.

An attendance of from 1,500 to 2,000 is expected, and members of the medical profession are especially invited.

Dr. F. P. Fletcher, president of the Richmond Academy of Medicine, will be chairman of the Public Safety Section of the Conference. This section is to have special charge of the discussion of accidents in the home which take a much larger toll than generally supposed. There were fifty-two deaths reported in Richmond from home accidents last year, caused by falls, scalds, burns, asphyxiation and poisons, as compared with thirty-six from automobile accidents, and in the whole United States the number was 35,000 from automobile accidents as compared with 33,000 from accidents in the home.

Further information may be obtained from Col. William M. Myers, managing director of the Richmond Safety Council, who is acting as secretary of the Conference.

American Medical Association.

Official call was issued recently for the eighty-sixth annual session of the Association to be held at Atlantic City, N. J., June 10th-14th, under the presidency of Dr. Walter L. Bierring, of Des Moines, Iowa. The House of Delegates will meet on Monday and the scientific assembly will open with the general meeting on Tuesday evening at 8:30 P. M. This will be a lovely season to visit Atlantic City and should be an added attraction in securing a large attendance. Those who have not selected reservations should communicate at once with Dr. W. E. Darnall, chairman, Committee on Hotels, 16 Central Pier, Atlantic City, N. J.

Dr. Frank F. Thweatt, Jr,

Class of '28, University of Virginia, School of Medicine, now P. A. Surgeon, U. S. Public Health Service, is being transferred on May 1st from Naples, Italy, to Warsaw, Poland, care the American Consulate General.

The Virginia Conference of Social Work,

At its meeting held in Richmond April 10th-13th, the division on Public Health, sponsored by the Richmond Academy of Medicine, with Dr. Fred P. Fletcher, Jr., as chairman, recommended that the section on Public Health be continued and that the Medical Society of Virginia be asked to sponsor the program.

That the indigent and the population in the lower income groups are receiving insufficient medical care was brought to the attention of the group which suggested that a Central Admitting Bureau be established in various communities throughout the State to render day and night service and act as a clearing house through which hospitals, clinics and home services could be coordinated. Here, according to the findings committee, adequate records should be kept, information made available, and the services of ambulance, city physicians, nurses and social workers be procured. One of the major functions of the bureau would be the adjustment of the health service costs to the individual income, budgeted and scaled to meet individual circumstances. Public and private health agencies, private physicians and dentists, faced with the same problem, were recommended to combine in this undertaking.

Group hospitalization was recommended as a further aid for the lower income group, as well as adequate clinical facilities, tax supported, for the ambulant, indigent sick. Such facilities should be in close alliance with the hospital and home medical services through the Central Record Office and social service workers, and all physicians serving in clinics should be paid, the committee further suggested.

A complete copy of the findings and recommendations of this commmittee is available to any one

wishing it and may be secured by notifying Miss Miriam H. Dettelbach, Council of Social Agencies, 803½ East Main Street, Richmond, Va.

Dr. N. Thos. Ennett,

Until recently of Richmond, Va., but now director of the Health Department of Pitt County, N. C., with headquarters at Greenville, has just become editor of the Public Health Department of *Southern Medicine and Surgery,* upon invitation of its editor, Dr. J. M. Northington, of Charlotte.

Married.

Dr. Edward M. Holmes, of the staff of the State Health Department, Richmond, Va., and Miss Sarah Daily Walsh, Norfolk, Va., April 27th.

Dr. James Edwin Wissler, class of '30, University of Virginia, School of Medicine, and Miss Lola C. Johnson, Winchester, Va., March 24th. They are making their home in Washington, D. C., where Dr. Wissler is now associated with Drs. Groover, Christie and Merritt in the practice of roentgenology.

American Medical Golfers to Play in Atlantic City.

The American Medical Golfing Association will hold its twenty-first annual tournament at the Northfield Country Club in Atlantic City on Monday, June 10, 1935. This is described as a most interesting golf course and has a beautiful club house. Thirty-six holes of golf will be played in competition for the seventy trophies and prizes in the nine events.

Dr. Charles Lukens, of Toledo, is president of this Association, which was organized in 1915 and now totals 1,100 members representing every state in the union.

All male Fellows of the American Medical Association are eligible and cordially invited to become members of the A. M. G. A. Write the Executive Secretary, Bill Burns, 4421 Woodward Avenue, Detroit, for an application blank. Participants in the A. M. G. A. tournament are required to furnish their home club handicap, signed by the secretary. No handicap over twenty-five is allowed, except in the Kickers' (Blind Bogey). Only active members of the A. M. G. A. may compete for prizes. No trophy is awarded a Fellow who is absent from the annual dinner.

May Day—Child Health Day.

May first will again be celebrated throughout the nation as May Day—Child Health Day. The project for this year is immunization against diphtheria of all children between the ages of six months and six years.

In the twelve years from 1920 to 1932, the deaths from diphtheria in the United States dropped from 15 for every 100,000 population to 4.5. Though there are states and cities where the disease has become very rare, there are other states and cities where the trend is in the wrong direction; where the deaths, according to the latest reliable figures, are increasing rather than decreasing. It was for this reason that the American Child Health Association has selected the stamping out of diphtheria as their special project for May Day—Child Health Day.

Further information about this program may be obtained from the American Child Health Association, 50 W. 50th St., New York.

Medical College of Virginia News.

Dr. James B. McLester, professor of medicine, University of Alabama School of Medicine, recently addressed the junior and senior classes in medicine.

President William T. Sanger and Dr. Lewis E. Jarrett, superintendent of hospitals, attended the Tri-State Hospital meeting in Greensboro, N. C., April 11th-12th. Dr. Jarrett was elected president of the Virginia Hospital Association at this meeting.

The regular scientific meeting of the faculty and staff was held on April 11th. The program was as follows:

Spinal Cord Compression—Report of a Case, by Dr. Harry Walker.

The Responsibilities of our Dietary Department, by Miss Aileen Brown.

The Treatment of Bichlorid of Mercury Poisoning—A Study of Forty-Six Cases, by Dr. William B. Porter.

The Outpatient Department report for the month of March shows 6,191 patient visits made by 2,894 individual patients. Of the total of 6,191 patient visits to the clinic 2,479 were to the medical clinics, 2,957 to the surgical clinics, 283 to the obstetrical clinics, 449 to the pediatrics clinics, and 23 to the preventive medicine clinic.

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Dr. E. H. Ingersoll attended the American Asassociation of Anatomists in St. Louis, April 18th-20th. At this meeting he gave a paper on the structure and function of the sympathetic nerve cells in the rabbit.

Dr. Harvey B. Haag, Dr. Frank L. Apperly, and Dr. A. M. Ambrose attended the sessions of the Federation of American Biological Societies, which includes the American Pharmacological Society, American Physiological Society, American Biochemistry Society, and the American Society of Experimental Pathology. The convention was held in Detroit, April 10th through the 13th.

Rare Chemicals, Incorporated, Nepera Park, New York, has established a fellowship of $1,500 in the department of pharmacology for the purpose of making quantitative and qualitative comparisons of the various purified fractions of digitalis. Eli Lilly and Company, of Indianapolis, Ind., has renewed its grant of $1,200 for further research work in arthritis. Parke, Davis & Company has made a grant of $1,500 for research work in the department of pathology.

News From University of Virginia, School of Medicine.

Dr. Milford Edwin Barnes, professor of hygiene in the Department of Preventive Medicine and Hygiene, University of Iowa, visited the Medical School on March 19th.

On April 11th, Dr. David C. Wilson spoke before the Virginia Conference of Social Work, meeting in Richmond, on Psychopathic Hospitals.

On April 12th, Dr. J. Edwin Wood was the guest speaker at the Annual Meeting of the University of Virginia Alumni Association in Charleston, W. Va.

On the occasion of the annual initiation to Alpha Omega Alpha on April 12th, Dr. Harvey B. Stone, of the Johns Hopkins University Medical School, gave the William Webster Root Memorial address, speaking on the subject of Transplantation of Endocrine Gland Tissue in Mammals.

News Notes From the Duke University School of Medicine and Duke Hospital.

On March 18th, Dr. E. P. Alyea, Associate Professor of Surgery in charge of Urology, gave a talk on "Renal Tumors in Children" before the North Carolina Urological Association in Pinehurst, N. C., and on April 2nd he addressed the staff of Sternberger Children's Hospital, Greensboro, N. C.

On March 20th, Dr. E. P. McCutcheon, Instructor in Dentistry, gave a paper, with exhibits, on "Fractures of the Maxilla and Mandible," before the Tri-State Dental Association in Washington, D. C.

On March 28th, Dr. Alan M. Chesney, Dean of the Johns Hopkins University School of Medicine, lectured to the students and staff on "Experimental Syphilis."

On March 30th, Dr. Hugh H. Trout, Director and Surgeon in Chief of The Jefferson Hospital, Roanoke, Va., addressed the students and staff on the subject of his recent visit to the surgical clinics at Cincinnati, Chicago, Rochester, Ann Arbor, Cleveland and Detroit.

On April 1st and 2nd, Miss Elizabeth C. Burgess, Associate Professor of Nursing Education of the Teachers College, Columbia University, visited the Duke Hospital and School of Nursing.

On April 6th, the second meeting of the North Carolina State Dietetic Association was held at Duke Hospital, which was featured by an address on Diet and Health, by Dr. W. J. Dann, of the medical school faculty.

On April 12th, Mr. Vernon Altvater, Superintendent of Duke Hospital, gave a paper entitled, "Do We Need a Central Purchasing Bureau?", at a joint meeting of the North Carolina, South Carolina and Virginia Hospital Associations.

On April 13th, Dr. Foster Kennedy, Professor of Neurology at Cornell University School of Medicine, gave the second annual lecture, under the auspices of the Beta Rho Chapter of Nu Sigma Nu, his subject being "The Relation of Neurology and Psychiatry to General Medicine."

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Dr. Deryl Hart, Professor of Surgery, has just returned from attending the meetings in Baltimore of the Surgical Society of Southern Surgeons.

Dr. C. E. Gardner, Jr., Assistant Professor of Surgery, has just returned from a three weeks' visit to clinics in Cincinnati, Chicago and Rochester, Minn.

Dr. C. L. Haywood has just been appointed Surgeon in Chief to the Hugh Chatham Memorial Hospital, at Elkin, N. C.

During the month of April a new physiotherapy department is being opened at the hospital, with complete equipment for hydrotherapy and a small swimming pool for under water exercises.

New X-ray therapy equipment is being installed, in which there is a 400,000 constant potential volt machine. This machine, with two 200,000 volt machines, will make the therapy department the largest in the South.

Jefferson Medical College.

The William Potter Memorial Lecture was delivered by C. E. A. Winslow, Dr. P. H., Professor of Public Health, Yale School of Medicine, on March 29, 1935. His subject was "A Physician of Two Centuries Ago: Richard Mead and His Contributions to Epidemiology."

Dr. C. T. Wilfong,

Who has been connected with the work of the Veterans Administration in Richmond, Va., for some time, has been transferred to the Veterans Administration Facility, Roanoke, Va.

Group Hospitalization Plan for Richmond.

After a study of nearly two years, the Richmond Academy of Medicine has announced its decision to sponsor and develop group hospitalization in Richmond, Va. At first it was thought that this plan of service would have to operate under the State insurance laws, requiring not only a large bond but also a large reserve of cash collateral, which would make the plan prohibitive. In view of the demand for this service, the Academy's Committee finally proposed a plan which was submitted to the State Corporation Commission. After inquiry into the proposed plan, the Commission has indicated that if the details of the contract now being worked out by hospital executives proves satisfactory, an authorization to proceed could be granted under the securities law. The fact that the plan will be permitted to operate under the securties law means no relaxation of the State's watchful supervision, and this fact is welcomed by the Academy of Medicine which wishes to surround the plan with every possible safeguard for the individual as well as the hospitals interested.

The group hospitalization plan is already in successful operation in about fifty American cities and it is believed it will shortly be adopted by most of the hospitals in this community.

Dr. J. O. Fitzgerald,

Richmond, Va., was among those attending the Eastern Section of the American Congress of Physical Therapy at its meeting in Baltimore, Md., March 29th and 30th.

West Virginia Alumni, M. C. V.

Dr. W. T. Sanger, President of the Medical College of Virginia, and Dr. Lewis E. Jarrett, secretary of the Alumni Association, recently attended a meeting of the West Virginia Alumni Association in Charleston, and spoke of the College and its plans for the future. There were about fifty members present at this dinner meeting. Dr. John E. Cannady, class of '01, and Dr. R. O. Halloran, '31, both of Charleston, were elected president and secretary-treasurer, respectively, of this chapter.

New Appointments on Boards of State Hospitals.

Governor Peery announced the following appointments, the first of April, on the boards of directors of the various State hospitals: Dr. Frank C. Pratt, of Fredericksburg, to succeed Dr. James K. Hall on the Central State Board; Dr. O. T. Amory, of Newport News, to succeed Mrs. T. S. D. Covington on the Eastern State; Mr. J. P. Carico, of Galax, was re-appointed to the board of the Southwestern Virginia, and Mr. Shirley Carter, of Winchester, to that of the Western State.

The Virginia Graduate Nurses' Association

Is to hold its annual meeting in Charlottesville on May 16th, 17th and 18th, and a large attendance is expected. Miss Frances Helen Ziegler, dean of nursing of the Hospital Division, Medical College of Virginia, is president, and Mrs. R. S. Faris, also of Richmond, is executive secretary.

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The Metropolitan Life Insurance Company,

New York City, announced two revised and one new publication which may be of interest to doctors. The first pamphlet is on Tuberculosis and has been prepared with the cooperation and advice of the National Tuberculosis Association. The second is on Diabetes and indicates the signs and causes of diabetes, etc. Man's Fight Against Disease is the title of the third pamphlet. This includes reproductions of posters used in an exhibit in the Smithsonian Institution and they portray the progress of public health from the early days to the present time.

The Company will be glad to send limited quantities of the first two pamphlets to responsible organizations for use in their health education programs, but the supply of the third pamphlet is very limited and very few additional copies can be furnished.

Air-Conditioning System in Local Hospital.

St. Elizabeth's Hospital, Richmond, Va., has installed a complete air-conditioning system in the operating rooms and all of the front bedrooms of the hospital. This not only cools the air in summer and heats it in winter, but all of the air that enters these rooms is filtered and the humidity regulated both winter and summer.

To Represent State Society.

Dr. C. C. Coleman, Richmond, Va., has been appointed by Dr. F. H. Smith, President of the Medical Society of Virginia, to represent this organization at the First Annual Virginia Statewide Safety Conference, to be held at the Jefferson Hotel, Richmond, on May 15th and 16th.

Dr. A. M. McLaughlin,

Of the class of '32, Medical College of Virginia, who has recently been with the Dupont Rayon Company, has located in Waynesboro, Va., where he is associated with Dr. J. F. Hubbard in general practice.

Dr. F. P. Fletcher,

Richmond, Va., has just been re-elected president of the East End Business Men's Association of this city, an organization interested in the civic affairs of that section of the city.

Dr. W. P. Hoy,

Petersburg, Va., has been elected a member of the board of directors of the Petersburg Rotary Club for the new fiscal year beginning July 1st.

American Association for the Study of Goiter.

The annual meeting of this Association will be held in Salt Lake City, Utah, June 24-26, 1935. A tentative program has been prepared and includes many prominent speakers from the United States and Canada.

Additional information may be obtained from the Corresponding Secretary, Dr. W. Blair Mosser, Kane, Pa.

Dr. Allen Graham, Cleveland, Ohio, is president, and Dr. J. R. Yung, Terre Haute, Ind., president-elect of this Association.

The Virginia Society of Oto-Laryngology and Ophthalmology

Will hold its annual meting, May 4th, at the Stratford Hotel, Fredericksburg, under the presidency of Dr. B. R. Kennon, Norfolk. Dr. G. G. Hankins, Newport News, is secretary-treasurer.

Dr. N. E. Tylar,

Who has recently been assistant to Dr. D. Lane Elder in Hopewell, Va., has been assigned to a CCC camp near Williamsport, Pa., with the rank of first lieutenant.

Dr. Q. H. Barney,

Who was located for some time at Mount Sidney, Va., has moved to Altavista, Va., where he is now engaged in general practice.

The American Neisserian Medical Society

Will hold its first annual meeting at the Claridge Hotel, Atlantic City, N. J., June 11th, under the presidency of Dr. J. D. Barney, of Boston. An interesting program has been prepared and all who are interested in this work are cordially invited to attend.

Dr. Oscar F. Cox, Jr., 475 Commonwealth Avenue, Boston, Mass., is secretary of the Society.

Radio Broadcasts.

The Richmond Academy of Medicine has for some months sponsored radio broadcasts over two Richmond broadcasting stations — WRVA and WMBG, the stations kindly contributing the time. Subjects which should be of interest to the layman are selected for the broadcasts which are made in the name of the Richmond Academy of Medicine, the identity of the speakers not being announced. There are two broadcasts a month, one over each station. The following is the program for May:

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May 8th—WMBG—8:30-8:45 P. M.—Typhoid Fever.

May 29th—WRVA—7:20-7:30 P. M.—Poison Ivy.

The Virginia Hospital Association

Held its annual meeting the middle of April, in connection with that of the Tri-State Hospital Association of the Carolinas and Virginia in Greensboro, N. C. There was a good attendance and the sessions were most interesting. The following were elected officers of the Virginia group for the coming year: President, Dr. Lewis E. Jarrett, head of the Hospital Division, Medical College of Virginia, Richmond; vice-presidents, W. N. Walters, business manager of Lewis-Gale Hospital, and C. B. Short, business manager of Jefferson Hospital, both of Roanoke; and secretary, M. Haskins Coleman, director of Johnston-Willis Hospital, Richmond.

Doctor has Unpleasant Experience.

Dr. Guy Fisher, prominent specialist of Staunton, Va., had the most unfortunate experience on the 15th of April, of being held up in his apartment, chloroformed and robbed. He is none the worse for wear now, except for the loss of a good sum of money which he had on his person at the time.

The American Proctologic Society

Is to hold its annual meeting in Atlantic Ctiy, N. J., June 10th and 11th, under the presidency of Dr. L. A. Buie, of Rochester, Minn. Headquarters will be at the Marlborough-Blenheim. An excellent program and several social features have been arranged. Special entertainment is also being arranged for the ladies. There is a fee of $5.00 for each registrant, whether member, guest, or member of family.

For additional information, address the Secretary, Dr. Frank G. Runyeon, 1361 Perkiomen Avenue, Reading, Pa.

Annual Report of St. Elizabeth's Hospital.

The 1934 report of St. Elizabeth's Hospital, Richmond, Va., states that the total number of patients was 1,146. Approximately 76 per cent of these were surgical, 10 per cent medical and the remaining 14 per cent urological. There was a total of thirty-four deaths. Of these deaths twenty-one (2.52 per cent) were among the operative surgical patients, one (2 per cent) among the surgical non-operative, seven (6.25 per cent) among the medical cases and five (3.26 per cent) among the urological. The mortality rate for all deaths was 2.96 per cent as compared with 2.93 per cent in 1933.

This report shows a decided increase in the proportion of the number of major operations as well as an increase in the more severe types of cases. The outpatient department reports 2,652 visits which include dressings, examinations and treatments during 1934, as compared with 2,113 in 1933; 206 basal metabolism tests, 150 electro-cardiograms, 618 microscopic tissue examinations and 13,757 laboratory examinations.

Seventeen articles contributed by members of the Staff were published in twelve different Journals. Two books were written—"Synopsis of Genitourinary Diseases" by Dr. A. I. Dodson, published by The C. V. Mosby Co., St. Louis, containing 275 pages and 111 illustrations by Miss Helen Lorraine; "Benign and Cancerous Gastric Disturbances" by Dr. J. Shelton Horsley, published by The University Extension Division, University of Kansas.

Appended to the report and constituting an interesting feature of it is a synopsis of all deaths, including remarks on the case, types of treatment and report of necropsies. Twenty-eight (82.35 per cent of all deaths) had necropsies performed.

Part of Eastern State Hospital to be Moved.

It is announced that a 200-patient unit of the Eastern State Hospital will be moved from Williamsburg, Va., to the Dunbar Farm outside of the town so that the Rockefeller interests can build a modern hotel near the present hospital. It is proposed to build a completely self-sufficient plant on the Dunbar Farm property, including a heating plant, kitchens and staff quarters.

Dr. William A. Harris,

Fredericksburg, Va., has announced himself as a candidate for the Democratic nomination for the Virginia House of Delegates.

Dr. Julian L. Rawls,

Norfolk, Va., was recently elected President of the Norfolk-Portsmouth Chapter of the Richmond College Alumni Association.

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Fraternity Honors Physicians.

Dr. Hugh S. Cumming, surgeon general of the U. S. P. H. S., Dr. William H. Wilmer, Washington, D. C., and Dr. J. C. Flippin, University, were among those recently elected to membership in the University, Va., Chapter of Sigma Xi, national honorary scientific society. Howard H. Curd, Welch, W. Va., a medical student, was also elected from the student body.

The Academy of Physical Medicine

Will hold its annual meeting at the Claridge Hotel, Atlantic City, N. J., June 12th and 13th. For further information, address Arthur H. Ring, M. D., Secretary-Treasurer, Arlington, Mass.

The American Public Health Association

Will hold its annual meeting in Milwaukee, Wis., October 7-10, 1935. This organization is a society of 4,500 professional public health workers whose annual sessions review developments in health protection and promotion and outline plans and policies for future advances.

Several related organizations will meet simultaneously with this Association at Milwaukee.

A Health Exhibit featuring commercial, scientific and educational displays is a feature of these meetings and will be conducted as usual this year.

The Chairman of the Local Committee on Arrangements is Dr. John P. Koehler, Health Officer of Milwaukee. The American Public Health Association at 50 West 50th Street, New York City, will be glad to send program outlines on request.

Wanted—

Male resident physician for nervous and mental sanatorium; recent graduate with at least one year's completed internship; preferably unmarried. Write "451," care this journal, 1200 East Clay Street, Richmond, Va. (*Adv.*)

Obituary Record

Dr. James Hunt Royster,

Widely known neuro-psychiatrist of Richmond, Va., died March 22nd, following a heart attack. He was a native of North Carolina and was forty-two years of age. Dr. Royster studied medicine at the Medical College of Virginia but received his degree from the Jefferson Medical College of Philadelphia in 1917. At the time of his death he was an associate chief of the staff of Westbrook Sanatorium. He was in active naval service during the World War, being a Lieutenant, senior grade. Dr. Royster was a member of the Medical Society of Virginia and a number of other professional organizations. He is survived by his wife, neé Miss Louise Moss, formerly superintendent of Westbrook Sanatorium.

Dr. Ernest Christian Fisher,

Richmond, Va., died April 15th. He was sixty years of age and a graduate of the former University College of Medicine, Richmond, in 1900. Dr. Fisher was until a short time before his death assistant medical director of the Life Insurance Company of Virginia. He had been a member of the Medical Society of Virginia for thirty-one years. His wife and a son survive him.

Dr. Fielding Hudson Garrison,

Baltimore, Md., internationally known as a medical librarian and historian, died on April 18th at Johns Hopkins Hospital, having failed to rally from an abdominal operation. He was sixty-four years of age and a graduate in medicine from Georgetown University of Washington in 1893. Dr. Garrison was for over thirty years assistant librarian in the Surgeon General's Office at Washington and was for nearly twenty-five years editor of the *Index Medicus*. Later, for a short time he was associate editor of the *Quarterly Cumulative Index Medicus*. At the time of his death he was librarian at the Welch Medical Library, Baltimore, which position he had held since 1930.

Dr. Lee Jones,

Blount Springs, Ala., died January 11th of heart disease. He was fifty-three years of age and a graduate of the University of Virginia, Department of Medicine, in 1909.

Dr. Thel Hooks,

Smithfield, N. C., died February 18th of cerebral hemorrhage, at the age of fifty-eight. He was a graduate of the Medical College of Virginia in 1901.